HEARING

BEFORE THE

CALIFORNIA ENERGY RESOURCES CONSERVATION

AND DEVELOPMENT COMMISSION

In the Matter of:	)	
	)	
Application for	)	
Certification for the	)	Docket No. 98-AFC-4
SUNRISE COGENERATION AND	)	
POWER PROJECT (SUNRISE)	)	
_____	)	

CALIFORNIA ENERGY COMMISSION

FIRST FLOOR HEARING ROOM A

1516 NINTH STREET

SACRAMENTO, CALIFORNIA

FRIDAY, JANUARY 28, 2000

9:10 A.M.

Reported by:
Valorie Phillips
Contract No. 170-99-001

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Michal Moore, Presiding Member

STAFF PRESENT

Gary Fay, Hearing Officer

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P R O C E E D I N G S

9:10 a.m.

PRESIDING MEMBER MOORE: Good morning, everyone. I'm Michal Moore, I'm the Presiding and the only Member of the Siting Committee now on the Sunrise case. I'm joined on the dias by Gary Fay, my Hearing Officer. We'll conduct today's evidentiary hearings concerning water and air quality.

We've entertained a request from the applicant to take the water section first, they have a witness who has to depart. We'll indulge them in that.

And let me just first, though, start with any housekeeping items that anyone would like to bring up. Mr. Grattan?

MR. GRATTAN: I have no housekeeping items. Maybe after air quality we can sit back and see where we are.

PRESIDING MEMBER MOORE: Caryn.

MS. HOLMES: Thank you. There's two issues that I'd like to briefly address. First, I received this morning CURE's testimony on water that was filed, I believe it was yesterday. Staff is in the process of reviewing it.

We haven't had a chance yet to talk to DTSC who provided the comments in the original hearing on water upon which staff rested its conditions. We'll have to get back to you later today about what the filing of this testimony means for us.

PRESIDING MEMBER MOORE: I understand that, and I read the filing this morning. I haven't seen it before that. Serious business, I understand that. I take it very seriously. I'm not quite sure how we're going to handle it, so I'll just simply say for right now I assume that the applicant had it, has a copy, --

MR. GRATTAN: Yes.

PRESIDING MEMBER MOORE: -- that they're cogitating on it, as well.

I think right now that's about as far as I want to go. I got it. I'll make a determination sometime later. It is pretty clear to me that given the water issues in general, that there will be some other day that this hearing will remain open to, where we'll consider some wrap-up issues. I can't believe now looking at the volume of stuff, that that won't happen.

So I'll adjust the schedule and timing

today accordingly, but you can anticipate that there will be some day in the very near future where we will all convene again to consider the trailing issues. I don't know what those will be right this instant.

You have a second item?

MS. HOLMES: The second issue has to do with air quality and the USEPA. I talked with them earlier this morning. The indicated that they had met with Texaco on Wednesday, I believe it was, and that as a result of that meeting they had the same concerns that they expressed at the hearing two weeks ago. In fact, they said that some of their concerns were even stronger now.

I asked a question on what that meant for the CEC process. Unfortunately, the person I talked with, Mr. Mullaney, who's in their counsel's offices, was not very familiar with the CEC process. And he wanted to have an opportunity to talk with some of the people who are more familiar with the process.

I plan to call him back when we're on break this morning and find out if they have a recommendation for the Commission. Staff, after we have had a chance to talk with EPA, ourselves,

will also have a recommendation about how we should proceed with respect to the DOC issue.

They also indicated it might be possible for them to talk to the Committee via conference call, as they did at the previous hearing. If that's necessary, or if you want that, we probably need to arrange that now because we have to get a call-in number and do all of those kinds of things.

PRESIDING MEMBER MOORE: Well, if that's possible then I would say let's try and do that at 1:30 today. And if we can arrange it that that will be the first thing following the luncheon break, then we'll set it up so that --

MS. HOLMES: I will talk to them about --

PRESIDING MEMBER MOORE: If it happens.

MS. HOLMES: I will talk to them about that when I call them back on our morning break.

PRESIDING MEMBER MOORE: Great, thank you.

MS. HOLMES: Those were my two issues.

PRESIDING MEMBER MOORE: Thank you. The intervenors, Ms. Poole.

HEARING OFFICER FAY: Before we go

to -- staff, I noted in the transcript that staff committed to a follow-up with DTSC regarding the phase 2 soil study. What's the status of that?

MS. HOLMES: Is Mr. -- he just left. The staff person who talked with DTSC just left the room. I'm sure he will be back later on. Let's have him update you at that time.

HEARING OFFICER FAY: Okay. Go ahead, Ms. Poole, housekeeping --

MS. POOLE: Good morning. Housekeeping issues, I think given what staff counsel has just reported, we'll just wait and see what happens today and address any concerns we have later on, if that's all right.

HEARING OFFICER FAY: Okay. I'd like to let everybody know that I have passed out a revised exhibit list that takes us through exhibit 101. And please look it over when you have a chance and give me feedback on any corrections that you may have to the exhibit list.

MS. HOLMES: In between writing our six briefs, is that correct, Hearing Officer?

HEARING OFFICER FAY: Yes, that's right.

MR. GALATI: Mr. Fay, if I can make one comment regarding water.

HEARING OFFICER FAY: Now that I'm up to six cases, myself, I'm a little less sympathetic. Counselor.

MR. GALATI: I just wanted to make sure that it was clear that CURE did meet their date in filing their testimony. They had extended a time for us to respond to their questions. And so I didn't want to leave the impression that they had surprised with testimony, that's number one.

We had gotten the testimony faxed to us. We have experts that are prepared to deal with that issue.

HEARING OFFICER FAY: Today?

MR. GALATI: Today. And we're ready to go forward, and we think we can put that issue to bed.

HEARING OFFICER FAY: Good.

MR. GALATI: Thank you.

HEARING OFFICER FAY: Great.

MS. POOLE: I appreciate that, Mr. Galati.

PRESIDING MEMBER MOORE: Okay. All right, here we go. Mr. Grattan, I'm going to turn to you. You have a witness for water.

MR. GRATTAN: Yes, and I'm going to turn

this over to the very able counsel, Mr. Galati. And gracious Mr. Galati.

MR. GALATI: I'm going to call back up to the panel, they've been previously sworn, Ms. Rogalla and Mr. Randy Marx. Ms. Rogalla previously testified regarding the water resources section of the water quality area. And Mr. Marx will address the testing and the water quality.

I'd also like to make the Committee aware that we do have another expert in a rebuttal situation, if necessary, Mr. Richard Casagrande, who is also an expert that can address any issues that come up based on the testimony we hear.

PRESIDING MEMBER MOORE: Thank you. The floor's yours.

Whereupon,

JOY ROGALLA and RANDALL MARX

were recalled as witnesses herein and having been previously duly sworn, were examined and testified as follows:

DIRECT EXAMINATION

BY MR. GALATI:

Q I'm going to go ahead and start with -- Ms. Rogalla previously stated her qualifications, but I'd like to ask Mr. Marx to just briefly

describe his qualifications and experience for the Committee.

MR. MARX: Okay, thanks. I'm with Radian, I've been with Radian about 11 years now in environmental consulting, working on hazardous waste and various environmental projects.

Prior to that time I spent 11 years at the CalEPA, approximately, the first five years at state water resources control board here in Sacramento, and the following six years at the DTSC regional office in Sacramento.

And my job there was a first-line supervisor in the REQRA permitting unit. And I was in charge of a staff who was in charge of making decisions on who required REQRA permitting and hazardous waste determination issues and closure plans and various issues related to REQRA.

MR. GALATI: Mr. Marx, you previously sponsored, and I believe it was moved into evidence as exhibit 93, the water resources testimony of Joy Rogalla and Randall Marx, do you remember that written testimony?

MR. MARX: Yes, I do.

MR. GALATI: And did you prepare the portion of that written testimony or supervise its

preparation with respect to the water tests?

MR. MARX: Yes, um-hum.

MR. GALATI: And can you affirm that testimony under oath today?

MR. MARX: Yes, I can.

MR. GALATI: And do you have any changes or additions to that testimony?

MR. MARX: No.

MR. GALATI: I believe that the exhibits you're sponsoring were previously moved into evidence. I won't go there.

However, could you briefly summarize your testimony with respect to the water tests, specifically focusing on the sampling, where it was taken and what the results were, for the Committee?

MR. MARX: Sure, okay. I have sort of an exhibit here, maybe help everybody kind of see all these waste streams.

MR. GALATI: Yes, let me turn around a microphone so you can make sure you're on the record.

MR. MARX: Okay, again, I --

HEARING OFFICER FAY: Right. You'll need to hold a microphone to be sure.

MR. MARX: Okay.

PRESIDING MEMBER MOORE: Ms. Poole, can you see those? You're probably in a better position to see them actually than we are.

MS. POOLE: I can, thanks.

MR. GALATI: And just for clarification, this is a blow-up of a figure that is in exhibit 93 already attached to the written testimony. It's figure W-1.

HEARING OFFICER FAY: Thank you.

MR. MARX: Yeah, this is a fairly simplified drawing. There's a little more detailed drawing, I guess, in the more recent submittals that were made.

But what I really focused on was kind of putting my DTSC hat back on and trying to figure out if this is any hazardous waste streams involved here.

And there's four streams that were tested. The first one is called the oil field produced water stream. And this is the waste stream coming as produced water from the oil fields. And this is after the various oil removal, oil separation processes have occurred.

In hazardous waste perspective you want

to look at a material after it becomes a waste. Prior to this time when oil is being removed by the various oil separation processes, you're in process because you're recovering oil, it still has a use. But after those various oil separation processes you do have a waste stream.

This is the first stream that was tested. And, of course, at the TCI facility there's two processes that occur to get the water ready to be reused at Sunrise. And that is a filtering process and a softening process. And each of those processes produce a waste stream.

The filter process produces a backwash, when the filters are backwashed. And a regeneration brine is produced from the softening process. Both those waste streams go to Valley Waste.

And I'd note that also some of the oil field produced water, after the oil separation processes, also can directly go to Valley Waste.

So that's, let's see, that's one, two, three. The fourth one is the softened boiler feedwater which goes to Sunrise after those two, the softening and the filter process.

So, I basically did what Diane did and

looked at the results. And it's my opinion that all four of these streams are nonhazardous waste streams, or nonhazardous streams.

And just to really briefly go over the numbers, there were two rounds of sampling. The first round of sampling in November '99 was performed by Precision Analytical. And the highest reading I found in any of those four streams was a lead reading of 0.8 mg/liter, which is six times less than the STLC of 5 mg/liter.

The highest organic reading was a benzene reading of 46 mcg/liter, which is ten times less than the TCLP of 500 mcg/liter.

And the second round of sampling was done in December '99. And at that time an aquatic bioassay test was also run, which is a DTSC test which can also make something hazardous. And all four streams easily passed that test.

The second round of sampling also had organic and inorganic tests performed.

The highest readings there in the second round, which was performed by Zalco Labs, a different laboratory, was a benzene reading of 110 mcg/liter, which is five times less than the TCLP of 500 mcg/liter. And a mercury reading of

0.25 mg/liter, which is 80 times less than the TTLC of 20 mg/liter.

So, I think my conclusion then is the same as DTSC, that all four of these streams are clearly nonhazardous.

PRESIDING MEMBER MOORE: Can you tell me where those samples were taken? In other words, did they take them with a sampling device of some kind, on site --

MR. MARX: Yeah, I think their response indicates the locations and the type of device that they used.

PRESIDING MEMBER MOORE: I just want you to --

MR. GALATI: I think at this time we can go ahead and --

PRESIDING MEMBER MOORE: I just want you to summarize where -- they were taken on site, correct?

MR. MARX: They were all taken from lines, these direct lines that either went to Valley Waste or would go to Sunrise or at this location.

PRESIDING MEMBER MOORE: So they open a stop-cock in those and bleed out a sample?

MR. MARX: Yeah, they let it run for, I think, five minutes to try to get a representative sample; and take the sample in the appropriate container depending on the type of analysis, plastic or whatever's appropriate for that particular analysis.

PRESIDING MEMBER MOORE: Just out of curiosity, what happens to the material, the liquids that run for five minutes? Do they take those and take them in a separate container?

MR. MARX: Oh, I imagine they just put them back into the process, but I'm not certain.

PRESIDING MEMBER MOORE: Thank you.

MR. MARX: Shall I leave this up or --

HEARING OFFICER FAY: Could you leave that figure up, please, because --

MR. MARX: Sure.

HEARING OFFICER FAY: -- it may come in handy later.

MR. MARX: Okay.

HEARING OFFICER FAY: That's figure W-1, and you say that is found in exhibit 93, Mr. Galati?

MR. GALATI: Yes, that is.

HEARING OFFICER FAY: Okay.

MR. GALATI: And, Mr. Fay, at this time I'd like to mark for identification a submittal entitled Sunrise Cogeneration and Power Project, response to CURE questions, dated January 14, 2000. The document, itself, is dated January 21, 1999, and was docketed on January 22, -- excuse me, 2000.

HEARING OFFICER FAY: That will be exhibit 102.

BY MR. GALATI:

Q Mr. Marx, in exhibit 102 there's an attachment A I've just put in front of you. Could you please turn to it. Are you familiar with that diagram?

A Um-hum.

Q And could you briefly describe what that diagram is?

A This is a little bit, basically a more detailed version of what's up here that shows some of the oil separation processes prior to the filtration and the softening processes.

Q And, Mr. Marx, did you review the testimony filed by Dr. Page?

A Yes, I did, um-hum.

Q And one of the contentions was that

Dr. Page had testified in previously written testimony that the produced water stream that was tested by TCI was not, in fact, representative of the produced water. Do you recall that?

A Yes, um-hum.

Q Could you -- do you have any comments regarding that conclusion?

A You're talking about the produced water stream?

Q Yes.

A Well, again, from my DTSC experience you're really concerned with the material after it becomes a waste, not in the middle of the process. So it's important to distinguish between when you're in a process and when you're out of the process where the material has no useful purpose anymore.

And while you're in the oil/water separation phase the TCI is doing something useful, they're recovering oil from a stream. So you haven't produced a waste that has no useful purpose until after that time. So that's when you'd be interested in taking samples to see if the waste is hazardous or not.

Q And do you have an opinion on the sample

of the produced water after it had gone through some processing, whether that is representative of the potential waste stream?

A From reading all the various testimony of the sampling techniques that occurred it appears that representative samples were taken.

Q And with respect to produced water, does it always, after it is processed and the oil is taken out of it, is it always sent directly to Valley Waste?

A I'm sorry, after the?

Q After the produced water, the oil is taken out of it, is all of the produced water sent to Valley Waste?

A Well, it's going to be going to Sunrise after the filtration and softening process.

Q Would it be fair to characterize that TCI performed tests on the produced water prior to softening?

A Yes, um-hum.

Q And did TCI also perform tests on the produced water after softening?

A Yes, um-hum.

Q And that was nonhazardous?

A That's correct.

Q Do you have an opinion on whether that water is a waste?

A Well, when it's going to Sunrise it's a waste, but it's being recycled because it has a purpose use at Sunrise. So it needs to follow the, it would have to follow the requirements for DTSC as a recycled waste.

Q And the waste stream that you identified as regeneration brine, I believe?

A Um-hum.

Q Could you briefly describe for the Committee what that is?

A Well, that's within the softening process and as the softeners absorb the various metals, at a certain point it needs to be regenerated, because they've been saturated, basically with the metals.

And so a regeneration liquid is run through there to sort of regenerate the softeners again so they can work. That produces a brine waste stream.

Q Did you review Dr. Page's testimony regarding his opinion on the tests that were performed on the regeneration brine stream?

A Yes, I did, um-hum.

Q And did he agree with the test results?
A No. There was some indication there that maybe the samples that were taken were not representative. And there was a calculation involving a 64 number, I think, that indicated that he'd expect to have higher numbers there.
And there was a discussion of the fact that some of the numbers went up over the process where he'd expect them to drop.
I think, again from my DTSC experience, that we prefer to look at data that is actual waste stream data and not calculations of estimates of what something might be. We would never, at DTSC, accept a calculation on a hypothetical concentration. We would prefer to focus on an actual concentration.
Q And Dr. Page came up with an expected concentration factor of 64, is that correct?
A Yes, um-hum.
Q Okay, and does that mean that the regeneration brine should have 64 times the concentration of metals, for example, than the inlet to the softener?
A Well, again, there's a lot of various assumptions that went into that, and I don't know

if you can be so precise to come up with an actual number. There's reason to think it might be, you know, you have dilution that is occurring during that process where you have more water that would be mixed in with the brine, so the factor might not be at that particular number.

But I think really the main point is that you want to focus on what the concentration was in the actual waste stream that's going to Valley Waste, or to Sunrise, not in a hypothetical calculation that is derived from that kind of technique.

Q Assuming that there is a 64 times concentration, would that change your opinion on whether the regeneration brine stream is a hazardous waste?

A No. Because even if you assume that 64 was fact, and you multiplied all the analytical results by 64, you'd still be far less than the TTLCs. I think you had one or two that were just slightly over the STLCs, but again, you have to run the STLC test to verify that, you're below that.

And in my opinion, even if you multiplied everything by 64 you'd still be well

under hazardous waste levels.

Q So assuming Dr. Page's prediction was correct that there should be 64 concentration, do you believe that with the inlet test results and the other test results you reviewed, that there's no hazardous waste associated with softening of produced water for the Sunrise project?

A Yes, I do. And I think the key point is there if you get -- you starting getting close to the haz waste limits, then you really have to look at the sampling technique and whether it was a perfectly representative sample in a lot of detail.

But when you're so far below the levels like these data indicate, then I would agree with DTSC that there's no need to run additional tests or do different analyses.

Q In your experience has DTSC ever made a determination on a calculated or predicted number?

A Not when I was there, I don't believe so, no. You always fall back on actual results unless there's a certain reason why you can't get that. Almost always you should be able to get actual results, and not predicted values.

Q And these samples were done on two

different days, over a month apart?

A Yes, um-hum, by two different labs.

Q And actually was the aquatic bioassay done by a different lab?

A You're right, three different labs, um-hum.

Q And all of those laboratories, to your knowledge, are state certified?

A Yes.

Q So, based on that do you believe that the Sunrise project will comply with all applicable LORS if approved by the Commission?

A As far as the DTSC hazardous waste regulations and laws, it doesn't appear to be a generator of hazardous waste that would require meeting any DTSC Title 22 regulations, that's correct.

Q And do you believe that the use of softened produced water or the creation of softened produced water will have any significant adverse environmental impacts?

A No.

MR. GALATI: I have no further questions. The panel is available for cross.

PRESIDING MEMBER MOORE: Counselor, I

have a question for your witness, and that is on the -- with regard to the 64 times number that you've referred to several times, and the fact that several laboratories have looked at this data, what's the range of variance on the figures from the field sample between those different labs? How close are they?

MR. MARX: For which particular sample result?

PRESIDING MEMBER MOORE: For the --

MR. MARX: I believe they're in the same range in general. Each is a little different. I think the numbers are all so low that when you're comparing two very low numbers it's one might be higher in one case and vice versa.

But I don't believe either the first or the second one had a significantly higher or lower result.

PRESIDING MEMBER MOORE: So you didn't go back and look at the samples and look at how close the samples were to each other? In other words, what the range was?

MR. MARX: Yes, I looked at that, but I don't recall for every single anilide what the exact difference was. We could run through it, we

have the data here. But I didn't see anything that was significantly out of whack in terms of one set being different from the other set

PRESIDING MEMBER MOORE: If you'd seen a number that was as high as we've had stated in this document sent to you, would that raise a flag in your mind? If one of these numbers showed up in a sample, would that raise a flag?

MR. MARX: If one of the numbers was --

PRESIDING MEMBER MOORE: I need to cite this. This is a letter that I've received signed of Bonnie Heeley. It's docketed 98-AFC-4, date received January 27th.

HEARING OFFICER FAY: Testimony of Bruce W. Page.

PRESIDING MEMBER MOORE: I'm sorry, it is the testimony of Bruce W. Page, Ph.D., on behalf of the California Unions for Reliable Energy on the water sampling results.

If you saw the numbers that Dr. Page has concluded in here, would they raise a flag in your mind in the field sample?

MR. MARX: Only if you were really approaching the hazardous waste levels. If one of the results was, say, within 10 or 20 percent of

the hazardous waste levels and the other one was much below I'd start to be concerned.

But when both numbers, even if they differ, are both orders of magnitude below the hazardous waste levels, then I would not be concerned.

PRESIDING MEMBER MOORE: Thank you.

Okay, then, staff.

MS. HOLMES: We have no questions of these witnesses.

HEARING OFFICER FAY: Okay. CURE.

MS. POOLE: A few questions for Mr. Marx.

CROSS-EXAMINATION

BY MS. POOLE:

Q Mr. Marx, based on your experience at DTSC, is DTSC concerned about facilities that treat hazardous waste?

A Yes, they are.

Q Does DTSC, in fact, have authority to permit facilities that treat hazardous waste?

A Yes, they do.

Q Do you know whether Valley Waste accepts produced water from the oil field for disposal?

A Directly from the oil fields? Yes, they

do. Various waste streams from the oil fields, it's quite a wide range, I think, in their permit.

Q Thank you. And you referred, I believe, today in your testimony to early treatment processes within the overall Texaco treatment facility.

Where does the oil go from those early treatment steps?

A I believe it has value, it's used, you know, it's recovered and used as product by Texaco. And that's real important, because that's what keeps them in the process as opposed to the waste arena.

Q To your knowledge that oil is used as product?

A I believe so.

MS. POOLE: Thank you, that's all my questions.

HEARING OFFICER FAY: Okay, --

PRESIDING MEMBER MOORE: Staff, do you have a witness?

HEARING OFFICER FAY: Just have --

MS. HOLMES: No.

PRESIDING MEMBER MOORE: Oh, I'm sorry, Mr. Fay has --

EXAMINATION

BY HEARING OFFICER FAY:

Q I just have one. Mr. Marx, have you had occasion in your experience to take the kind of samples that were taken by these labs?

A Physically, in the field?

Q Yes.

A Not that much. I was more involved with permitting and the paperwork side of it as opposed to we usually have technicians that would do that. Or actually, DTSC did very little sampling on our own, other than the enforcement staff. And I wasn't in enforcement. I was in permitting, REQRA permitting.

Q And how does DTSC verify, based on your experience, how did they verify that a sample was taken at the appropriate location --

A Well, first of all, --

Q -- in a waste stream?

A -- by certifying the laboratories. They have a lab certification process. Secondly, there's chemists that work at DTSC that mull over the data to make sure proper procedures were followed and all the chain of custody and QAQC type procedures were followed.

So I would tend to rely on the opinion of those chemists in helping reach a decision.

HEARING OFFICER FAY: All right, thank you.

MR. GALATI: Just one redirect.

HEARING OFFICER FAY: Yes.

REDIRECT EXAMINATION

BY MR. GALATI:

Q Counsel for CURE asked you a question about produced water. Do you recall that?

A Yes.

Q I think specifically whether produced water from the oil field goes to Valley Waste. Is the term produced water a catch-all term for any water that comes out of the ground with oil?

A Yeah, I believe it's a fairly generic term.

Q And so the produced water may not go directly from the oil well to Valley Waste, correct?

A Yes.

Q And you're referring, when you talk about produced water, to the produced water that could be a waste stream from the TCI 2-22 facility?

A Yes, my focus was on, again, from the waste perspective, when it first becomes a waste, and I believe that's after the oil separation processes and prior to filtering and softening.

Q And again, to clarify, the produced water prior to that stage, was it your opinion that that was not a waste?

A Yes, I believe that's part of the process.

MR. GALATI: Thank you, no further questions.

HEARING OFFICER FAY: Any redirect?

MS. HOLMES: No redirect.

HEARING OFFICER FAY: Thank you. Do you have any other witnesses on this matter?

MR. GALATI: I have a witness that may rebut what we hear today.

HEARING OFFICER FAY: Okay, fine. Then, staff, do you have any testimony on this?

MS. HOLMES: No, we do not.

HEARING OFFICER FAY: Okay. CURE?

MS. POOLE: Yes. I'd like to present Dr. Page and Dr. Fox as a panel.

HEARING OFFICER FAY: Dr. Fox has previously been sworn and is still under oath.

Would the court reporter please swear Dr. Page.

Whereupon,

PHYLLIS FOX

was recalled as a witness herein and, having been previously duly sworn, was examined and testified further as follows:

Whereupon,

BRUCE PAGE

was called as a witness herein and after first being duly sworn, was examined and testified as follows:

MS. POOLE: I think it might be helpful if we mark some exhibits before we begin.

HEARING OFFICER FAY: All right.

MR. GALATI: I'm sorry, can I interrupt? Can I move in the exhibit, I believe it was marked 103.

HEARING OFFICER FAY: 102?

MR. GALATI: 102.

HEARING OFFICER FAY: Any objection?

MS. POOLE: No objection.

HEARING OFFICER FAY: All right, so moved.

What are your exhibits, Ms. Poole?

MS. POOLE: The first, which we will not

discuss today, but which has been filed is the testimony of Dr. Fox on water quality impacts of the project, dated January 3, 2000.

HEARING OFFICER FAY: That's exhibit 103.

MS. POOLE: The second is the testimony of Dr. Page on water sampling results dated January 26, 2000.

HEARING OFFICER FAY: Dr. Page's testimony is exhibit 104.

MS. POOLE: And the final is Dr. Fox's testimony on the water sampling results also dated January 26th.

HEARING OFFICER FAY: That will be exhibit 105.

DIRECT EXAMINATION

BY MS. POOLE:

Q Dr. Page, would you please briefly identify yourself and your occupation for the record?

A Yes. My name is Bruce W. Page. I live in El Cerrito. My occupation is I'm a chemical engineer who works in the environmental field. I have my doctorate from the University of California at Berkeley 1971.

Q And your testimony dated January 26th which has been marked as exhibit 104, was that prepared by you and under your direction?

A Yes, it was.

PRESIDING MEMBER MOORE: Excuse me, could we just move that other microphone?

HEARING OFFICER FAY: Please speak directly into the mike. If you are facing counsel you'll be facing away from the mike. The mike is highly directional, so perhaps move it around in front of you.

BY MS. POOLE:

Q And does that testimony marked exhibit 104, are those factual statements contained in that testimony true and accurate to the best of your belief?

A Yes, they are.

Q And are any opinions contained in that testimony based on your best professional judgment?

A Yes, they are.

Q Thank you.

DIRECT EXAMINATION

BY MS. POOLE:

Q Dr. Fox, would you please state your

name for the record?

A Phyllis Fox.

Q I don't think we need to go through your qualifications.

And have the exhibits which have been identified as exhibits 103 and 105, were those prepared by you or under your direction?

A They were.

Q And do the factual statements contained therein, are those true and accurate to the best of your knowledge?

A They are.

Q And do any opinions contained therein represent your best professional judgment?

A Yes.

MS. POOLE: I would like to ask Dr. Fox to just briefly summarize the testimony and what we would like to do is put on the overhead what has been identified as attachment A to exhibit 102.

(Pause.)

DR. FOX: Okay, I'd like to start out with the applicant's figure W-1, the water block flow diagram which Mr. Marx talked about a minute ago.

The figure that I have on the screen here, which is station 2-22, proposed new water plant process flow diagram. That is an expansion of the information that is in this block on the applicant's figure. The block on the applicant's figure is labeled TCI2-22 facility.

Well, there's a lot of stuff that goes on within this facility. And that stuff is expanded on the overhead that I have put up.

Okay, I'd like to just briefly run through the treatment steps in the Texaco station 2-22 treatment process. It starts in the upper left-hand corner here, there's a box that reads produced water from oil/water separation unit.

So there's another treatment step on here that's not even shown. What happens is produced water from the oil field comes into the facility. It goes through an oil/water separator, which is a standard device that you find in petroleum operations that separates oil and water.

After it goes through the oil/water separation unit some of the water is stored in raw water tanks and oil is skimmed off. The water then moves down into a series of cylindrical shaped units more or less in the middle of the

figure labeled flotation cells.

The flotation cells are dissolved air flotation units. And that, again, is a standard treatment process that you find in the petroleum industry. What it is, is basically a bubbler. Air bubbles are blown through the water, the rising air bubbles entrain oil and cause it to rise to the surface. The oil is then skimmed off.

After the water goes through the flotation cells, it then moves down into the next three sets of cylindrical devices shown on this figured labeled filters. That's these three units here.

The filters are a pre-treatment step for the downstream ion exchange unit. And the purpose of the filters is to remove solids which would plug up and adversely affect the ion exchange resin.

After the water goes through the filters it then enters the ion exchange units which are the next three series of cylindrical units on this figure labeled softeners. Softeners and ion exchange unit are analogous, it means the same thing.

After the water goes through the

softeners it then heads out here to the right, softwater to backbone, that would be the water that goes into the TNAP corridor and ultimate ends up at the Sunrise plant as feedwater for the HRSG.

There are a number of water tanks here where the waste streams are collected. The filters, the backwash, the filters get clogged with suspended material that's removed from the water, and they have to be backwashed periodically to clean them. The filter backwash water is collected in a tank which is sent to Valley Waste.

Likewise, the ion exchange unit or the softener has to be regenerated periodically. An ion exchange system is a resin which exchanges atoms on the resin for ions in the incoming stream. And this particular system is designed to move cationic materials, calcium and magnesium primarily. However, it also removes other type cationic materials like copper, chromium, barium, lead, nickel and zinc.

So any of those elements that are in the feedwater to the ion exchange system end up on the ion exchange resin. And when all of the sites on the ion exchange resin are filled up, you have to regenerate it to remove those contaminants so you

can use it again to take the calcium and the magnesium out of the water.

Well, the regeneration step you use a brine solution, about 10 percent sodium chloride, and you run it through the resins. You take the resins offline and you run this brine through them, and the brine washes off the contaminants that were captured on the resin. And that brine stream goes in the tanks and is periodically sent to Valley Waste.

So you've got two waste streams here, the filter backwash and the brine regenerant.

Now, in the sampling that the applicant did they collected samples roughly at this point where I'm putting an X, which is the inlet to the ion exchange process. They also collected a sample at the outlet of the ion exchange unit roughly at this point where the arrow labeled 7 is pointing.

They also collected a sample of regeneration brine which they collected on this line here, which I'm placing an X on, which is labeled regeneration brine.

And finally, they collected a sample of filter backwash on this line labeled filter

backwash where I'll place another X. So we have four X's now.

The first thing I want you to notice is that all of these X's are very far down in the treatment process. No samples were taken upstream of where these X's are. And in particular, no samples were taken of the produced water coming into the plant in the upper left-hand corner where I just placed an X and marked it A.

HEARING OFFICER FAY: Dr. Fox, let me interrupt you a minute. Could you please describe the location of the first X that you indicated as a sampling location?

DR. FOX: The first X is at a location, there's a box labeled fresh water makeup, and an arrow comes out of that box and points to a line. And the sample of the inlet was collected immediately downstream of where that fresh water makeup comes into the inlet line to the softeners.

MR. GALATI: Mr. Fay, I have extra copies of that if you'd like.

HEARING OFFICER FAY: That would be helpful.

(Pause.)

HEARING OFFICER FAY: Okay, go ahead.

Sorry.

DR. FOX: Okay, so the first sample at the inlet was taken immediately downstream of the point where freshwater makeup is added. And that's the sample that I'll be referring to as inlet.

The second sample was taken where the arrow labeled 7 points to the softwater to backbone line, let's call that B.

The third sample was taken on the regeneration brine line, which I'll call C. And the last sample was taken on the filter backwash line which I'll label D.

So there were basically four samples collected and all four of the samples were collected very far down in the treatment process. There were no samples collected of produced water coming into the plant in the upper left-hand corner of this figure.

Now, I'd like to talk a bit about the softener, since three of the samples were collected around the softener. And to do that I need the next figure.

MS. POOLE: I do have copies of this. This is also taken from exhibit 102.

HEARING OFFICER FAY: Can you describe where in the exhibit?

MS. POOLE: This is a summary of the data -- I'm sorry, it's not exhibit 102, this is a summary of the data that was provided in the data responses to staff's data request.

HEARING OFFICER FAY: Does this appear exactly this way in the record?

MS. POOLE: These numbers appear in the record. This table is a condensation of the numbers.

HEARING OFFICER FAY: All right, let's mark this as an exhibit. The table titled November 15, 1999 samples with five columns, four figures and the far-left column of chemicals will be exhibit 106.

DR. FOX: Okay. I've summarized seven cationic metals here, which are the ones that you would expect to be removed by the type of resin that is used in this ion exchange system. And as you will recall I told you that an ion exchange system is nothing more than a cylinder that's packed with resin, and the resin looks like of like sand.

And these metals that are in the inlet,

which is the first column of numbers, would be expected to be removed by the ion exchange unit. In other words, you'd expect some of these metals to deposit on the ion exchange resin so that the concentration of these metals in the outlet from the ion exchange unit should be smaller than the concentration in the inlet. Because that's just how an ion exchange system looks.

And you can look at these two columns and compare them and see that that's not the case. In the case of barium you had .2 mg/liter going in, and .3 coming out. It's physically impossible to create more barium across the ion exchange system.

In the case of cadmium you had .002 going in, and .008 coming out, four times more. In the case of chromium nothing was detected going in; .02 was detected coming out. Copper looks reasonable. You see a reduction across the resin and that makes sense, that's what you would expect.

Lead, you see nothing going in, and .8 coming out. That's a fourfold concentration factor across the ion exchange resin. Nickel, .3 going in, .04 coming out. And zinc, again, that's

reasonable, .08 going in, .03 coming out, you see some reduction.

So for quite a few of these metals you have the curious situation of having higher concentrations in the outlet stream than you had in the inlet stream.

The other problem with this data is the brine column, the third column of numbers labeled brine, is the brine regeneration stream that I talked about. And as I explained in the ion exchange process, you end up depositing calcium, magnesium and these metals on the resin, you fill up all the resin sites.

And you have to periodically cleanse the resin by backwashing it with brine. And that's called the brine stream or brine regeneration. And that's done with a small flow of water. You don't want to waste a lot of water regenerating the brine.

So there's typically a concentration factor between the inlet and the brine. You would expect anywhere from 10 all the way up to 100 fold concentration of metals in the brine compared to the inlet.

So if you compare the brine column with

the inlet column what you should see is much higher concentrations in the brine than in the inlet.

MR. GALATI: And I would just like to lodge an objection at this point in the use of the term 100. The previously filed written testimony said there was a concentration factor of 10, and then there was a calculated concentration factor of 64. No one has mentioned a concentration factor of 100 until this moment.

MS. POOLE: Dr. Fox is testifying based on her experience with these systems. And she said that these types of systems run up to 100.

MR. GALATI: And why was that not in her written testimony?

HEARING OFFICER FAY: We're going to overrule the objection for now, and just continue. I think this is background and counsel will have an opportunity to rebut.

DR. FOX: I'll just amplify on the concentration factor a bit. I initially calculated a concentration factor of 10 with virtually no information.

I then got a design estimate from a vendor based on some preliminary produced water

composition data that Texaco had provided in response to a data request. The vendor came up with a concentration factor of 15.

And then this past week, in response to detailed information provided by Texaco on the design of this specific system, Dr. Page calculated what the concentration factor actually was for this system. And Mr. Galati is correct, it is 64 for this system.

But when I made that statement I was speaking in general for ion exchange systems in general.

Anyway, for this specific case, and these samples are for Texaco's 2-22 treatment plant, you would expect the concentrations in that brine column to be 64 times the concentrations in the inlet stream which is the first column of numbers.

And you can look and compare the numbers and see very quickly that that's not the case. And in fact, in many cases you find the concentration in the brine is lower than the concentration in the inlet.

For example, copper, .009 mg/liter in the brine, .02 at the inlet. That's physically

impossible. Likewise zinc, .04 in the brine, two times higher at the inlet. You'd never see higher concentrations at the inlet than in the brine unless the samples were collected very early in the regeneration process, before any of the metals had been stripped off of the resin, or very late in the process after all the metals had been removed.

And therefore, these are not representative samples. What should have happened is samples should have been collected from some of these tanks that were shown on the detailed flow diagram that I talked about earlier, the brine stream and the backwash stream go into tanks where they're held. And then they are sent to Valley Waste.

In order to get a representative sample you should collect the entire stream from the brine regeneration process. Or, alternatively, you should use some type of time integrated composite sampling process. There are standard composite samplers that collect the small aliquot every half hour or every hour, depending on how you program the system, so you can get a sample that's representative of the entire sample for the

entire process.

What you have here are instantaneous grab samples. And it's not even clear to me that for example the parcel of water that was sampled at the inlet is the same parcel of water that was being sampled at the outlet.

And that's one of the problems that arise from instantaneous grab sampling in this kind of a dynamic system.

I think that's all I have to say about these.

BY MS. POOLE:

Q Dr. Page, a couple of quick questions for you. I believe it's on page 2 of your testimony under Roman numeral III, second paragraph down, you refer to the term breakthrough. Can you explain what this term means.

DR. PAGE: The ion exchange process that we're talking about is designed primarily to remove hardness from the water before it goes into the heat recovery systems.

And the way that process works is that the resin, the ion exchange resin is saturated with sodium ions and under the conditions of the

feed of the service step, the resin prefers the hardness ions to the sodium, so an exchange takes place that the hardness ions go onto the resin, the sodium comes off the resin.

However, the resin only has a limited capacity. And once that capacity comes to an end, that exchange process can no longer continue. There's no more sodium left on the resin to exchange, so the hardness ions begin to come out in the water, in the effluent water, and that's called break-through.

MS. POOLE: Thank you. Whether the process is operating before or after break-through, should metal levels in the outlet stream from an ion exchange process be higher than in the inlet stream?

DR. PAGE: No, they should not.

MS. POOLE: And when would you expect regeneration brine samples to show lower levels of metals than in the inlet stream?

DR. PAGE: I would agree with what Dr. Fox said, either at the very beginning of the process, before the -- let me explain the break-through process -- or the regeneration process just a little bit more.

The concentrations change very very rapidly in the effluent water from the regeneration step. In a relatively small volume of water you're knocking off all those ions that you collected during the long service step.

And so everything happens very very fast. First of all, the water has very little in it, and then the concentrations begin to rise very rapidly. Once you've kicked off all the ions, left sodium on the resin, that process comes to an end, and the concentrations drop very rapidly.

So either very early in the process or very late in the process you would expect to see low metals concentrations.

MS. POOLE: Thank you. Dr. Fox put up a table of sampling results which has been marked as exhibit 106. These numbers are numbers like .002 mg/liter. Is there equipment available that can accurately detect these levels of metals?

DR. PAGE: Yes.

MS. POOLE: And would you expect a reputable lab to be off in measuring these metals by as much as a factor of 4?

DR. PAGE: Definitely not.

MS. POOLE: And would you like to add

anything to Dr. Fox's discussion in response to the remarks made by Mr. Marx?

DR. PAGE: No. I think the response she gave would be the same thing I would say.

MS. POOLE: Okay, thank you. And, Dr. Fox, did you want to respond to any points made by Mr. Marx?

DR. FOX: I did. I just wanted to make a comment on Mr. Marx's comments about comparing quote, hypothetical concentrations to regulatory levels.

In my supplemental water testimony I made some calculations based on the data that was provided in an attempt to figure out what the concentrations might reasonably be expected to be in the brine regeneration stream and in the produced water at the front-end of the treatment process.

And the reason I did that is because the samples that were provided were not adequate to make a determination of whether or not the Texaco system is treating hazardous waste.

I specifically took the outlet lead concentration of .8 mg/liter. Since you've got .8 in the outlet, clearly you're going to have .8 in

the inlet, and likely more because lead is removed across the resin. And then I multiplied that by Mr. Page's 64 full concentration factor. And found that the resulting concentration would exceed the regulatory levels for lead and result in the classification of the brine stream as a hazardous waste had the samples that were provided been representative.

Likewise, I took the benzene concentrations at the inlet to the ion exchange system and I back-calculated what the benzene concentration might have been in the produced water coming into the treatment system.

And what I found in that case was the concentrations would have exceeded the regulatory level for benzene, which is .5 mg/liter.

I was forced to make those hypothetical calculations because the data that was provided was not adequate.

MS. POOLE: The witnesses are available for cross.

HEARING OFFICER FAY: All right, Mr. Galati.

MR. GALATI: Thank you. Turn to Dr. Fox first.

CROSS-EXAMINATION

BY MR. GALATI:

Q Let me start with what you just said about lead. You said you took the outlet sample of .8, multiplied it by a concentration of 64?

A Correct.

Q That exceeded regulatory levels?

A Yes.

Q Isn't it true that there are two regulatory levels? The TTLC and the STLC?

A Correct.

Q And isn't the TTLC the total threshold limit concentration?

A Correct.

Q And when you look at the total threshold limit concentration you compare a particular type of test, is that correct?

A Yes, but in this case the .8 mg/liter was done according to the STLC test, so I compared it to the proper limit.

Q Would it surprise you these are unfiltered samples?

A Not according to the methods that are written on the bottom of the page.

Q Are you familiar with the test on

mercury on 12/28?

A Cold vapor, yes.

Q I'm sorry, on 12/28/99 there was a test run by Zalco Labs on the constituent mercury.

A Yes.

Q Okay. And a TTLC test was done on that sample, correct?

A Yes. Zalco used different methods than Precision Analytical, which analyzed the November 15th data. Zalco actually did total analyses and compared them to TTLCs, Test TLCs, and then when they found an exceedence they used the wet method and calculated the soluble concentrations.

Q Let's move on to something else while my experts are looking at that.

Dr. Fox, do you contend that water mixed with oil in the ground is a waste? Talking about water mixed with oil in the ground.

MS. POOLE: Dr. Fox isn't testifying to water mixed with oil in the ground.

MR. GALATI: My offer of proof is I'd like to find out at what point in time in the process that she has just described she would characterize this produced water as a waste.

HEARING OFFICER FAY: We'll allow the

question.

DR. FOX: I think that calls for a legal opinion.

BY MR. GALATI:

Q Okay, can you answer the question whether or not crude oil that has been pumped into a tank that contains water that any constituent in that tank or any portion of that mixture is waste?

MS. POOLE: Can you repeat that question? I don't understand it. Do you?

DR. FOX: I understand it, but --

HEARING OFFICER FAY: Mr. Galati, why don't you describe for us where you're going with this and what you're trying to determine.

MR. GALATI: I'd be glad to because it would probably take awhile.

Dr. Fox had testified that she calculated prior, for example with the concentrations of benzene, prior to this treatment. She also testified there's quite a bit of treatment that went on before the test results.

Our expert had testified it doesn't become a waste until after some of that treatment is taking place.

She is comparing in the benzene

concentration, for example, she back-calculated what the benzene concentration would be in an area that we contend is not a waste. So it's irrelevant what the benzene concentration would be at that location.

And so I'm trying to see at what point in the process she will acknowledge that it is a waste, and what point in the process before that it is a product.

If she can't answer, or isn't qualified to make that distinction, then I'll change my line of questioning.

HEARING OFFICER FAY: All right. Go ahead.

MS. POOLE: Would you repeat the question, please?

MR. GALATI: Yes.

BY MR. GALATI:

Q Would you characterize produced water, or let's just call it water mixed with oil in a crude oil tank, would you characterize that water as waste?

A Let me preface my answer with a few remarks. There are separate regulations that apply to waste and the treatment of waste. And

those regulations are some of the most complex portions of California's hazardous waste regulations.

And those determinations are extremely difficult to make. And in my opinion it calls for a legal analysis and opinion.

Q Okay, so your testimony and your written testimony and today on back-calculating benzene prior to the flotation cells, I want to look at that portion of the stream, you can't say, as you sit here today, that that's a waste at that point?

A I don't believe I argued that it was a waste. What I said was the back calculation yields a concentration of benzene that exceeds the regulatory levels.

Q And if it is not a waste, there would be no regulatory levels applied to that stream, correct?

MS. POOLE: That calls for a legal opinion. She's already testified that we're talking about treatment regulations as well as waste regulations.

MR. GALATI: Oh, I'm sorry, I didn't hear that part.

//

BY MR. GALATI:

Q Don't you have to be treating a waste to fall under the treatment regulations? Do you know that answer?

MS. POOLE: Counsel, these are legal questions. I object to this line of questioning.

HEARING OFFICER FAY: Well, she can answer, I believe. If she's not able to answer we'd like to know that. But I think it is reasonable for us to determine if there was a point in the waste stream that Dr. Fox was focusing on.

The issue appears to be when the regulations would apply. If the regulations don't apply then it's an entirely different matter.

DR. FOX: In order to answer that question I would have to have the regulations in front of me, and a lot of additional information that I don't have on the specifics of that treatment system.

I have spent months working on similar problems for clients, and I'm familiar with the issues that you're raising, the issues of recycling, the issues of commercial products, waste products versus commercial products. I am

familiar with all of that.

And I am familiar enough to know that it's extremely complex, and it really calls for a legal opinion and I'm not going to give one off the top of my head sitting here without more information than the regulations in my hands.

BY MR. GALATI:

Q I understand, Dr. Fox, and I'm going to move on, okay? But I would like to ask you if you can agree that according to attachment A, which was the diagram that you put up on the overhead, would you agree that oil is still being taken out of the produced water at the filter stage?

A At the filter stage, ahead of the ion exchange unit?

Q That's correct.

A It's not intentionally being taken out at that point. It's intentionally taken out in the oil/water separator and the dissolved air flotation unit. Some of the oil ends up on the filter.

Q And how do you know that, Dr. Fox?

A Based on my experience with treatment systems.

Q And have you had experience with the TCI

2-22 treatment facility?

A No, I don't know the details of it, but based on what you've provided it doesn't appear to me that you are intentionally taking oil at that step.

Q Doesn't the filter backwash go to a tank in which oil is then recovered and then sent back to the oil/water separation according to the plant diagram?

A Yes.

Q So, you'd be speculating as to what the intent of the filters were, wouldn't you?

A My point is that the filter is not designed to take oil out. You inadvertently take some oil out across the filters. Then you have to remove it from the backwash stream. But the purpose of the filtration system is not to take oil out typically.

Q And the purpose of removing it from the backwash stream is not to add to the commercial product?

A The purpose of taking it out of the backwash stream is because I believe that there is a condition in your agreement with Valley Waste that you have to meet a certain oil and grease

level in order to discharge your wastewater into their ponds.

Q And that's 72 ppm?

A I don't remember the number.

Q Thank you.

A It's 7-something.

Q Thank you. I want to now talk about the sample results. The numbers you put up, aren't those the numbers on the inlet, the outlet, the regeneration and the filter backwash, aren't they all significantly -- the test results -- significantly below the STLC numbers?

A Yes.

Q In fact, aren't most of the test results less than, like for example, less than .02?

A Yes.

Q That means that the lab, it could be, it's possible that that result could be .0000001, isn't that correct?

A There were two sets of samples collected, the December 28th samples analyzed by Zalco, most of the metals were N/D. The first set of samples analyzed by Precision Analytical many of the metals were detected.

In the second set of samples on December

28th detection limits were reported in most cases.

Q For example in lead, which you just testified that if you multiplied that by 64 on the Pacific Analytical samples, wasn't the inlet sample less than 0.2?

A Yes.

Q And so the inlet sample could have been extremely low?

A Yes, it could have been.

Q And aren't we talking about -- let's take the outlet sample on that day for lead. It was .8 mg/liter. That's still a very small amount, isn't it?

A It's a lot higher than the drinking water standards. I wouldn't call it a small amount.

HEARING OFFICER FAY: Excuse me, Mr. Galati, Commissioner Moore has had to leave the hearing. Is there any objection for his temporary absence?

MR. GALATI: No, no objection.

HEARING OFFICER FAY: Fine, then we'll proceed.

MR. GALATI: As a matter of course, we don't object when a Commissioner leaves.

BY MR. GALATI:

Q With respect to comparing these numbers, for example, chromium, .03 to the outlet of .02 on 11/15. Those are extremely low numbers, correct?

A Yes, they are.

Q I mean one particle could really make a difference?

A One particle?

Q Yeah, one small particle in the numbers we're talking about here could really make a difference in the test results?

A From a chemical standpoint I'm not sure what you mean by a particle.

Q Well, the TTLC for chromium is 2500 mg/liter, correct?

A Correct.

Q And the STLC is 500?

A Correct.

Q And we're talking .03 to .02.

A Correct.

Q And so if you had one small either, let's say a particle, let's dust-size, that would make a big difference in a mg/liter between .03 to .02?

A Are you talking about a particle of

chromium?

Q Yes.

A I'm sorry, I can't relate to particles of chromium.

Q Are you assuming it's all soluble?

A Pardon?

Q You've assumed it's all soluble, haven't you?

A No, I don't think I made any specific assumption about that. I'm troubled by the use of the word particle.

Q Okay. I acknowledge that I don't have the experience you do in this area, please tell me the word you'd like me to use to be clear.

A Is your question if you add a small amount of copper to the water, the concentration would be higher?

Q Actually, can I use the term grain? Would that help, instead of particle?

A How about gram.

Q Well, I don't want to say gram, that has a particular weight. I'm talking about a small amount, whatever amount you want to call it, grain, particle, piece of chromium. When you compare .03 to .02 a very very small piece could

make a big difference --

A Okay, sure.

Q -- in those kind of concentrations?

A Yeah. I mean I could do a calculation and tell you how many grams you'd need to add to the water to increase the concentration to some other number.

Q Well, what I'm getting at is when you're dealing with these very small numbers, isn't this kind of within the noise of the sample?

A No, it's not within the noise of the sample.

Q It's significant between .03 to .02 when we're comparing this to an STLC of 500?

A The purpose of my remarks were to demonstrate that the data that we were given is not representative of the process. I don't know whether .02 or .002 or 20 or 200 is the correct number.

The overriding conclusion that one gets from looking at this number, these numbers, is that they are physically inconsistent with the ion exchange system.

I don't know, as I sit here, whether the real numbers are .0001 or 10 or 100 or 1000. The

only conclusion that I can draw is that the data is inconsistent with the physics of an ion exchange system.

I don't know what the problem is. I don't know whether it's a sampling problem, an analytical problem, or some other problem, but there's clearly a problem with the data.

And I'm not suggesting that copper, which you're focusing on, is necessarily a constituent that would lead to an exceedence of a TTLC or an STLC. I'm using this data simply to illustrate the fact that the data are flawed.

Q DTSC did not find the data to be flawed, did they?

A DTSC was not aware of the framework within which this data was to be evaluated. They didn't understand the Sunrise project. They didn't understand -- I have had conversations with DTSC and I have been told --

MR. GALATI: I'd object to any --

DR. FOX: -- they were not aware --

MR. GALATI: -- any testimony regarding conversations with DTSC --

MS. POOLE: Counsel, you just asked what DTSC, what their problem -- whether they had any

problems. She's responding to the question.

MR. GALATI: I think that --

DR. FOX: I have had conversations with --

MR. GALATI: -- we can have that response on the record when DTSC was here, testified, and was cross-examined by you and your witness.

HEARING OFFICER FAY: Counsel, we're going to overrule that. It's clearly hearsay, and to that extent subject to objection. But I think you did ask regarding DTSC's reliance, and I think Dr. Fox has her own opinion on why and how they relied on it.

We're going to overrule the objection.

DR. FOX: Let me summarize. I have spoken with Diane Peebler about this data. And explained to her my concerns. And in the course of that conversation I learned that she -- DTSC was reorganized right in the middle of this project, and it ended up on her desk at the last minute.

She was not familiar with the framework of this work, and she is not personally familiar with ion exchange systems. She did not, for

example, know that the brine stream was supposed to be concentrated compared to the inlet.

I expressed to her my concerns with the data. And she said that they would discuss it internally and re-evaluate their position.

BY MR. GALATI:

Q Do you know Diana Peebler's qualifications?

A Pardon?

Q Do you know her qualifications?

A No, I do not have her rÇsumÇ.

Q Would it surprise you that she's a registered environmental health specialist?

A No.

Q Would it surprise you that she's in the waste management unit?

A No, I know that.

Q Thank you.

CROSS-EXAMINATION

BY MR. GALATI:

Q Dr. Page, your testimony you attached a calculation?

A Yes, I did.

Q I believe it's attachment A to your testimony, is that correct?

MS. POOLE: His qualifications aren't labeled as an attachment, but they are attached to his testimony.

MR. GALATI: Oh, I'm sorry, the calculations are what I'm --

DR. PAGE: Attachment 1, I believe.

MR. GALATI: Okay, thank you.

BY MR. GALATI:

Q And in that calculation you took the brine solution and ran it through to come up with this concentration factor of 64, is that a fair characterization?

A Well, that's half of the characterization. I took the inlet water and compared it to the brine solution and came up with the concentration factor.

Q Okay. And in that calculation you came up with, and I'm looking to brine through-put --

A Yes.

Q -- 63.55 liters?

A Yes.

Q That's the amount of the brine solution?

A That's the amount of brine solution per cubic foot of resin.

Q Okay. And you took that number and

that's how you came out -- that was one of the numbers you used to come out with the concentration factor of 64, correct?

A That's correct.

Q You're familiar with the way regeneration, the regenerating process of ion exchange systems, correct?

A Yes.

Q When the regeneration brine is pumped into the softeners for the ion exchange system, isn't there water already in there?

A Yes, there is.

Q Okay. And at the end of the cycle how do you get the regeneration brine out of the softeners?

A With a rinse step.

Q Okay. And your 63.55 liters does not include the amount of water that would be in the system, or the amount of water in the rinse step, does it?

A That's right, it does not. And the reason -- do you want to hear the reason?

Q Yes, please.

A Because the sample was taken while the regeneration brine was running through the system.

If the sample would have been taken from the wastewater tank where the hold-up water was displaced and the rinse water was collected, then it would have been appropriate to account for those numbers.

But the sample was not taken from the tank, the sample was taken from the regeneration line, so you would not see the effect of that dilution in that line while the brine was running through the resin.

Q But the regeneration line represents the waste stream, doesn't it?

A Well, it represents the line in which the waste stream is flowing. A more representative description would have been for a system that is as dynamic as a regeneration step, it would have been far more representative to wait until the end of the regeneration step, and then you would have had that dilution that you just mentioned. And then taken a sample from that tank. But that isn't how the sample was taken.

Q Well, what I'm getting at is your -- I think Dr. Fox had testified in using the 64 concentration number is that the waste stream associated with regeneration, you should take a

factor of 64 times either the inlet, or in her case, the outlet, and that should be the concentration in the waste stream associated with regeneration --

A On the average --

Q But that's not correct, is it, because it doesn't take into account the water and the dilution of the stream?

A That's correct.

Q So it would be less than 64?

A It would be less than 64.

Q Thank you.

MR. GALATI: No further questions.

DR. PAGE: But not significantly less.

MR. GALATI: I have no further questions.

HEARING OFFICER FAY: Okay. Staff, any questions?

MS. HOLMES: We have no questions.

HEARING OFFICER FAY: Okay. Any redirect?

MS. POOLE: Yes.

REDIRECT EXAMINATION

BY MS. POOLE:

Q Dr. Fox, when you back-calculated the

benzene estimate in your testimony you were focusing on the constituents in the produced water when it first enters TCI's treatment facility, correct?

A Correct.

Q And, Dr. Page, you just had this discussion about the concentration factor of 64, and you stated at the end that you wouldn't expect the concentration to be significantly less. Can you explain that, please?

DR. PAGE: Yeah. The amount of water that would be on the resin bed at the beginning of the cycle would be about .4 of a cubic foot of water, that is the void space of a resin bed is about 40 percent.

And my calculation is based on per cubic foot of resin. So the dilution from that later would be about .4 of a cubic foot.

The rinse water, well, that's not a number that we have available to us, but according to my experience I wouldn't expect more than about three bed volumes of water for the rinse. And so that means that the rinse water would have been about 3 cubic feet.

However, as I pointed out, the sample

that we were looking at was not taken from the tank. And none of that dilution water would have appeared in the sample that we were given.

MS. POOLE: Thank you, that's all I have.

HEARING OFFICER FAY: Is there anything further, then, on the water sampling?

MR. GALATI: Actually I do have some rebuttal.

HEARING OFFICER FAY: Oh, you do?

MR. GALATI: Yes.

HEARING OFFICER FAY: All right. We'll go ahead through that and then take a -- how much rebuttal do you have?

MR. GALATI: I think probably five, ten minutes on my side.

HEARING OFFICER FAY: Let's go ahead.

MR. GALATI: Okay. At this time I'd like to introduce and have sworn Mr. Richard Casagrande.

HEARING OFFICER FAY: Please swear the witness.

Whereupon,

RICHARD CASAGRANDE

was called as a witness herein and after first

being duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. GALATI:

Q Mr. Casagrande, could you please state your name for the record, your place of employment, address, and briefly summarize your qualifications?

A My name is Richard Michael Casagrande. I'm President of RAM Environmental Engineering. My background is in public health. I worked in Kern County for the Public Health Department, Environmental Health. I'm a registered environmental health specialist. I teach courses in hazardous waste management at Bakersfield College.

From the late '70s until 1989 I ran the Kern County's Hazardous Materials Program where we addressed many of these issues. My company is a full turnkey operation company with geotechnical and engineering staff. And a field staff where we do take samples such as this.

I also co-authored the California Compliance School with representatives of DTSC. The compliance school is essentially a generator's

approach to how to comply with these various complex hazardous waste laws. And we train people, we teach people on how to sample, how to evaluate, and when to do it.

Q And, Mr. Casagrande, you heard the testimony today of Dr. Fox?

A Yes.

Q And do you have any comments about that testimony? Let's start first with the questions that were pertaining to when the produced water becomes a waste, if at all.

A Well, yeah. In looking at this block flow diagram and being familiar with --

HEARING OFFICER FAY: Would you describe the document you're referring to?

MR. CASAGRANDE: It's the station 2-22 that you were given previously.

HEARING OFFICER FAY: Thank you.

MR. GALATI: That's attachment A to I believe exhibit 102.

MR. CASAGRANDE: What we find is a material, oil and water, mostly water, and a generator, a company who is taking the oil and recovering it because it's a valuable commodity.

Throughout this whole process, in

addition to the oil commodity, I find that water is also a valuable commodity and I can explain why in a minute. That water, because it has such low concentrations of these dissolved metals, is valuable for producing steam.

So all they need to do is filter it, soften it, polish it. And it can be used as steam back into their process for producing oil.

Really this whole process generates a waste only at specific times, not internally, not at the floating cells, not at the filters, as it's going through that process. It is not a waste. It's all product. They're making oil, they're making water.

And in fact, I will submit to you, also, since 1982 I've been on the water district board of directors, West Kern Water District, since 1982, currently vice president.

We sell water to the oil fields. We would love to sell them water. Their produced water is such good quality they can polish it, filter it and use it. What they don't use or from that process they may produce waste.

Those wastes will be determined using the strategies that DTSC has developed to

determine whether that waste is hazardous or not. And what you found in testimony from Diana Peebler was it was not hazardous.

Diana is a registered environmental health specialist, having taken the registration test for the State of California. I know that some of that dealt with water treatment. I took the same test.

So, I think that answers your question as to whether or not this is a waste, and where would it become a waste, and whether or not we are dealing with more a commodity.

Q In your opinion the tests of the inlet and the regeneration brine and the filter backwash, are those tests reliable data?

A Well, they're reliable in that they were sent to a state certified lab on two occasions. They're reliable as a representative of that unit that they were taken from.

To the best that we could explain. In other words, these systems -- and your diagram isn't exactly the way it's there out in the field -- they are in series and they're in parallel. The system is going all the time at various states of being in regeneration or being

backflushed.

So when you take a sample the results were so small in comparison to the standard of being hazardous, that would be not remarkable.

And I think that was the testimony that Randy Marx gave also, they were just very very low concentrations. Not rising to the level of being hazardous per a Title 22.

DIRECT EXAMINATION

BY MR. GALATI:

Q Okay, let me ask a question to Ms. Rogalla and Mr. Marx. With respect to did you hear Dr. Fox's testimony about the concentration of lead and it being compared to the STLC value from Pacific Analytics test on 11/15?

MS. ROGALLA: Yes.

MR. GALATI: And do you have any comments regarding her conclusions?

MS. ROGALLA: With regard to the analytical results and comparison with the STLCs, the samples were not filtered in the field, therefore any of the results that we're looking at here are representative of total metals.

It's important to make that distinction, because even a low amount of turbidity or, as

Mr. Galati was referring to earlier, any amount of particulate matter in these samples could have a very large effect on these very low concentrations. And that really is what we're looking at here.

Comparing a very low number to a very low number, we don't have much change in magnitude. And so making a determination that the data don't make any sense is pushing it a bit, in my experience.

MR. GALATI: And, Mr. Casagrande, I'll direct this question to you. With respect to Dr. Page's testimony and the concentration, do you have any opinions regarding that?

MR. CASAGRANDE: Well, looking at whether a material -- when does it become a waste and if it becomes a waste, taking a theoretical and mathematical model and using that to determine whether a material is hazardous, much less whether it's a waste or not, but whether it rises to a level of being hazardous is something we don't do in the field.

And, in fact, the regulations would rather you not do that. And the state's program doesn't want you to do that. The state's program

wants you to sample actually your waste stream, generators of waste must sample their waste stream, and then compare that result to the levels that are found in the regulations.

And this is what Diana Peebler, did, looked at the results of analysis, not a theoretical model.

One further thing, there's a section in the hazardous waste regulations and it refers to this whole process here, and really it's a key point, that when a material is being in-process it is not a waste. It's only when it exits that process that it becomes a waste. And only then is when you sample it.

Polishing it, filtering it, and so on is not a waste treatment. It's not a waste.

MR. GALATI: Mr. Casagrande, you obviously reviewed the test results from the 15th and from December 28th, correct?

MR. CASAGRANDE: Yes, I did.

MR. GALATI: Did you find there was good correlation between the numbers?

MR. CASAGRANDE: Within the range, yeah. They were not significantly different from a waste category analysis. From looking at it as to

whether it is hazardous or not.

MR. GALATI: No further questions, and the panel's tendered for cross -- recross.

HEARING OFFICER FAY: Okay. Staff? Nothing. Any recross?

MS. POOLE: May we have just a minute?

HEARING OFFICER FAY: Sure, why don't we take a five-minute break now and we'll come back.

(Brief recess.)

MS. POOLE: We're on the record?

HEARING OFFICER FAY: Yes.

CROSS-EXAMINATION

BY MS. POOLE:

Q Ms. Rogalla, --

(Pause.)

HEARING OFFICER FAY: Ms. Poole, could you rearrange things to cross-examine Mr. Casagrande first. He has to leave in ten minutes.

MS. POOLE: Yeah, I think we can do that.

BY MS. POOLE:

Q Mr. Casagrande, is it your testimony that oil recovery in the thermally enhanced oil recovery process includes the steps between oil coming out of the well through at least part of

the water treatment process?

A It's all part of the oil recovery process.

Q Thank you. And what portion of the regulations were you referring to in your testimony regarding when wastes become wastes?

A It's in Title 22, or you might find it in Title 26 of the California Code of Regulations. And it's that section that refers to an in-process stream that talks in terms of a materials in process are not considered waste until they exit that process.

Or until that process is stopped. And then it becomes a waste. So a generator wouldn't be able to say I'm constantly going to go ahead and do this work. And then never have to test their waste, or test their material as to whether it's hazardous.

Q Can you give me a cite to that specific regulation?

A I teach it in compliance school up and down the State of California and I use it, and I have it in our compliance book. And I don't remember the specific. I could get that for you and submit it to the Commission.

MR. GALATI: Mr. Marx can answer that question, if you like.

MS. POOLE: Please.

MR. MARX: I believe it's 22 -- Title 22, California Code of Regulations, section 66260 or 66261. Those are the two sections that have to do with hazardous waste definition.

MS. POOLE: Those are very large sections.

MR. MARX: I know.

MS. POOLE: You can't pin it down in there?

MR. MARX: Well, I could if I had a copy.

MS. POOLE: Thank you.

BY MS. POOLE:

Q Mr. Casagrande, I have a copy of test method 6010B in front of me. And I'd like you to take a look at a portion of this, please.

Would you please read the portion of that test method that's in the parentheses on the page I showed you?

MR. CASAGRANDE: What section of this were you looking at?

MS. POOLE: The sentence which is below

the acronyms in parentheses.

MR. CASAGRANDE: Parentheses, a control limit of plus or minus 20 percent?

MS. POOLE: Yes, please.

MR. CASAGRANDE: -- built in percent difference, or within the document in historical acceptance limits for each matrix shall be used for sample values greater than 10 times the instrument detection limit.

MS. POOLE: Thank you. And I have just put in front of you what has been marked as exhibit 90, the water test results dated January 4, 2000. On that page are the November 15th sampling results.

Can you tell me what test method was used for those sampling results?

MR. CASAGRANDE: It appears that they did the soluble threshold limit concentration test. They used methods found in the SW846; they used a 6010 method.

MS. POOLE: Thank you. That's all I have for Mr. Casagrande.

HEARING OFFICER FAY: Does staff have any questions of Mr. Casagrande? Any --

MR. GALATI: No further questions for

me.

HEARING OFFICER FAY: Okay, thank you very much, Mr. Casagrande.

MR. CASAGRANDE: Thank you very much.

HEARING OFFICER FAY: We appreciate your testimony. You are excused.

CURE may continue with questioning the rest of the panel.

BY MS. POOLE:

Q Ms. Rogalla, I've just shown you the same page which I showed Mr. Casagrande, which are the November 15th test results from exhibit 90. Do you have that in front of you?

MS. ROGALLA: Yes, I do.

MS. POOLE: And do you see the standards column there?

MS. ROGALLA: The STLC column, is that what you're referring to?

MS. POOLE: Yes.

MS. ROGALLA: Yes.

MS. POOLE: And what does STLC stand for?

MS. ROGALLA: It stands for soluble threshold limit concentration.

MS. POOLE: And what is immediately to

the left of that STLC column?

MS. ROGALLA: The results.

MS. POOLE: And the lab, in preparing that sheet, compared the results to the STLC, correct?

MS. ROGALLA: Yes, they did. Well, they don't actually compare them, they report them, though.

MS. POOLE: Thank you. Are you familiar with test method 3010?

MS. ROGALLA: Yes.

MS. POOLE: And that test method was used for those samples, correct?

MS. ROGALLA: That's the preparation of it.

MS. POOLE: And does that include a filter step?

MS. ROGALLA: Not necessarily.

MS. POOLE: Do you know whether it did in this case?

MS. ROGALLA: I don't know for sure if it did in this case, however these samples were acidified upon collection in the field, in which case any metals adsorbed to particulates in those samples would have been dissolved in the sample.

So any subsequent filtration would not have been likely to be successful or entirely successful in removing any additional metals.

MS. POOLE: Thank you, that's all I have.

MR. GALATI: For the whole panel?

HEARING OFFICER FAY: Is that it for the entire panel?

MS. POOLE: Yes.

HEARING OFFICER FAY: All right, any redirect?

MR. GALATI: Yes, on that last question.

REDIRECT EXAMINATION

BY MR. GALATI:

Q So, Ms. Rogalla, do you believe that the results represent the total metal content?

A I believe they're more representative of total metals than they would be of soluble metals.

Q Thank you.

MR. GALATI: No further questions.

HEARING OFFICER FAY: Okay. Anything further then on the water treatment testing?

MR. GALATI: No.

HEARING OFFICER FAY: Nothing further, then, from any of the parties?

MS. HOLMES: Staff does have something further on water treatment in response to Dr. Fox's testimony this morning that Ms. Peebler was reconsidering her position.

Staff contacted Ms. Peebler at DTSC during the break and she informed us that she is not changing her testimony before the Commission.

HEARING OFFICER FAY: Thank you very much.

All right, I believe that concludes the testimony on water treatment sampling.

And if I recall correctly we were receiving CURE's direct testimony on operation impacts in air quality.

MS. POOLE: Yes, I would like to move exhibits 103, 104, 105 and 106 into the record.

HEARING OFFICER FAY: Any objection?

MR. GALATI: No objection.

HEARING OFFICER FAY: So moved.

Ms. Poole, do you need a moment to shift gears, here?

MS. POOLE: Just a moment, if we could, please, to rearrange our papers.

HEARING OFFICER FAY: Sure.

MS. HOLMES: Mr. Fay, --

HEARING OFFICER FAY: Yes, Ms. Holmes.

MS. HOLMES: -- before we move to air quality, which is what I believe you're doing, we have our biology witness here to talk to the Committee about a visit to Valley Waste. Perhaps this would be a good time to hear his testimony.

HEARING OFFICER FAY: Sure, while the parties are shifting gears if you could very briefly summarize. I understand that it makes no change in staff position.

MS. POOLE: I do object to this testimony. This visit to Valley Waste occurred with parties and agencies involved in this. We were not informed of this visit and would very much like to have attended. And I believe the Commission's rules require that we have been noticed about this.

HEARING OFFICER FAY: Do you want to address that, Ms. Holmes?

MS. HOLMES: It's my understanding that staff did attend with some of the representatives of the agencies, and one representative from the Sunrise project. However, it's also my understanding that there were no substantive discussions that took place. It was merely site

visit to visually observe the Valley Waste treatment facility.

And staff also discussed, I believe, its previous conversation with the director whose name I cannot remember right now. And reconfirmed the statements that he had made to staff prior to the last hearing.

There was no meeting in the sense of issue resolution as between the parties.

MS. POOLE: If there's no substantive discussion or issue resolution then I don't see why we need any further testimony on this matter.

MR. GRATTAN: That's agreeable to us.

MS. HOLMES: That's fine with the staff.

MR. GRATTAN: The testimony stands.

MS. HOLMES: We were under the impression that the Committee was looking for staff's response. It does not change staff's conclusions.

HEARING OFFICER FAY: The response is in the docket, why don't we just leave it at that. And I don't believe we have to even deal with the objection, if staff is comfortable with just leaving the report of the visit in the record as it stands.

MS. HOLMES: That's fine.

HEARING OFFICER FAY: Okay, fine.

(Pause.)

HEARING OFFICER FAY: I believe we're at the point where CURE is still -- have you begun your direct testimony on operation impacts?

MS. POOLE: We have not yet begun, so --

HEARING OFFICER FAY: Okay, --

MS. POOLE: -- this will be our --

HEARING OFFICER FAY: -- so, please, whenever you're ready.

MS. POOLE: -- initial direct testimony on operational impacts.

DIRECT EXAMINATION

BY MS. POOLE:

Q Dr. Fox, would you please state your name for the record.

A Phyllis Fox.

Q And was the air quality testimony submitted on behalf of CURE which has been marked as exhibit 56 prepared by you or under your direction?

A It was.

Q Have you reviewed the air quality testimony filed by other parties in this case?

A I have.

Q Do you have any comment you'd like to make on that testimony?

A I have two issues that I would like to address. The first one is the CO catalyst, and the second one is the PM10 emission level. And I'm going to take them one at a time.

In the case of carbon monoxide or CO, this project has been issued a final determination of compliance which specifies a CO permit limit of 6 ppm at 15 percent oxygen averaged over three hours.

And it is my understanding that this limit will be met without using a CO oxidation catalyst. The applicant has proposed to meet this limit with a CO oxidation catalyst.

It is also my understanding that the turbine vendor will not guarantee 6 ppm CO. The level that the vendor is willing to guarantee is 9 ppm.

The applicant, however, believes that they can meet 6 without a CO oxidation catalyst. And I have a lot of problems with that. I feel if the vendor isn't willing to guarantee an emission limit of 6 ppm, I believe it's unlikely that the

applicant will be able to meet that level without a CO oxidation catalyst.

CO oxidation catalysts are used on almost all of the plants that are before the Commission right now. I had someone compile a list of projects that will be using CO oxidation catalysts, and they include the Sutter Project, High Desert, LaPaloma, Elk Hills, Three Mountain, Pittsburg, the Midway Sunset Project and Pastoria.

And I believe the Commission should require that the Sunrise Project uses CO oxidation catalysts for two reasons: First, to assure that the permit limit of 6 is actually complied with. And second, as mitigation for significant acute health impacts that we previously discussed in the public health section.

I'd like to move on to the PM10 issue. The PM10 issue is actually quite similar to the CO issue. Before I launch into this, I need to make a few introductory remarks.

PM10 or particulate matter comes in two flavors. The first flavor is referred to as filterable PM10 or the so-called front half. And that fraction of PM10 is the stuff that you can see. It's the grime that settles on your tables

and furniture.

The second half is called the condensable, or the back half in the analytical test. And that fraction you can't see. And it's not necessarily present in the stack gases that are emitted, but it forms in the atmosphere through chemical reactions.

And the sum of those two, the sum of the filterable and the condensable equals PM10.

In this case, the turbine vendor is only willing to guarantee an emission limit of 18 pounds per hour. Half of that is filterable. Half of that is condensable.

This project has received a final determination of compliance and is proposing to offset only 9 pounds per hour. One of the problems with setting an emission limit on PM10, which is half of what the vendor is willing to guarantee is that it would be very difficult to catch exceedences, because you cannot continuously monitor PM10. PM10 is only measured through periodic stack tests.

And, of course, for a stack test you always fine tune everything so that you don't violate any of your permit limits.

So what we have here is a situation where he vendor is willing to guarantee only 18, all of the emissions data that has been submitted and are present in the AFC, and even in the appendices to the FDOC are based on emissions at 18 pounds per hour. Yet the project is offsetting only 9 pounds per hour, or half of that amount.

And I would like to comment on and critique Mr. Stein's testimony entitled air quality combustion turbine PM10 emission rate and emission reduction credits, in which this issue is discussed.

MS. POOLE: That's been marked as exhibit 51.

HEARING OFFICER FAY: Thank you.

DR. FOX: And what Mr. Stein does in this exhibit is attempt to demonstrate that the Sunrise Project can indeed meet 9 pounds per hour, even though the vendor won't guarantee it.

And the way he demonstrated it is he took 12 source tests for two power plants in Kern County, the Kern River Project and the Sycamore Project, and he summarized PM10 emissions. And then he calculated from that summary the percent of the total PM that was condensable and the

percent that was filterable.

And then he took those percentages and he applied them to the Crockett Cogen facility. And he picked the Crockett Cogen facility because the turbine at that facility is very similar to the turbine that would be used by the Sunrise plant.

So he took the source test for Crockett. And in the Crockett source test they only measured filterable PM10, they didn't measure the condensables. So there's no number for total. So you can't use the Crockett number unless you adjust the filterable to a total basis.

So Mr. Stein totaled these 12 measurements from these two plants in Kern County, figured out the percent that was condensable, and he applied that to adjust the Crockett numbers. And based on that he concluded that a similar size turbine, source tested in the Bay Area, could meet the 9 pounds per hour.

Now, I'm going to critique that analysis. The first problem I have with it is the Crockett turbine was a prototype turbine, first of its class, and GE no longer makes it. And there have been a lot of compliance problems at that

facility with carbon monoxide specifically, that most people believe are related to the fact that this is an unusual turbine. It really isn't that similar to the turbine that the Sunrise plant will use. So that's the first problem I have.

The second problem is the table that Mr. Stein used in his testimony labeled PM-1, table PM-1, didn't make any adjustment for the fact that the Kern River and Sycamore facilities are much smaller than the Sunrise project. In fact, there's a factor of two difference in the size.

And when you adjust the PM10 emissions in Mr. Stein's table PM-1, to account for the difference in size, you'll find that one of his source tests actually exceed the 9 pound per hour limit, making the case that indeed there's likely to be a compliance problem.

I, in my comments on the PSA, I believe, prepared my own summary of source test in an attempt to determine whether or not the 9 pound per hour limit could be met. And I summarized 20 source tests on GE frame 7's of various sizes.

And what I found was seven out of those 20 source tests exceeded the 9 pound per hour limit proposed by the Sunrise project. That's 35

percent of similar Frame 7's.

I also summarized 17 source tests for other types of turbines, derivative turbines and Siemens rather than GE Frame 7's. And there I found that seven out of the 17 or 41 percent exceeded the 9 pound per hour limit that has been proposed.

And then a final problem I have with the use of the Crockett facility to represent the Sunrise project is the PM10 emissions depend, in large measure, on where the plant is located. Because a lot of the PM10 you see in the exhaust gases actually come from the combustion air that's sucked into the turbine.

So if the power plant is sitting in an area with very high particulate matter concentrations in the air, like in Kern County, you would expect to see much higher concentrations of PM10 in the exhaust gases than you would in an area like the Bay Area where the Crockett plant is where PM10 concentrations are lower.

And in Mr. Stein's analysis he didn't make any adjustment for the differences in PM10 concentrations in looking at the plant.

Staff, in its FSA, evaluated my analysis

that I just summarized for you. And ignored virtually all of my source tests except one, and they relied again on the Crockett facility, overlooking the other 30-odd source tests that I had. And argued again, based just on the Crockett test, which only measured filterable PM10, that they believed that a 9 pound per hour limit could be met.

I believe that it is not wise to offset and permit a project at PM10 and carbon monoxide levels that the vendor won't guarantee.

BY MS. POOLE:

Q Does that conclude your direct testimony?

A It does.

MS. POOLE: The witness is available for cross.

HEARING OFFICER FAY: Mr. Galati.

MR. GALATI: Before we do cross-examination, let co-counsel address this.

MR. GRATTAN: Yeah, maybe we can save some cross-examination time. At this point in listening to the portion of Dr. Fox's testimony with regard to the oxidation catalyst, I think Dr. Fox's point is well taken. I think that it is a

good idea for this Commission to view similar projects, and view the requirements imposed upon similar projects, particularly neighboring projects that have been permitted by this Commission.

And we certainly would like to see that applied across-the-board, given an absence of unusual circumstances.

So we're prepared, at this time, like LaPaloma and like Pittsburg, permitted projects, two recently permitted by the Commission, to install an oxidation catalyst.

And we would be submitting minor errata to address where it's referenced, where the manufacturer's guarantees are addressed in, I think, air quality 3 and 4.

PRESIDING MEMBER MOORE: Mr. Grattan, that would be in lieu of acquiring any additional offsets?

MR. GRATTAN: Offsets weren't an issue with the CO catalyst. That's a PM10 issue, and that's a very different issue. This is an issue of whether to put on a CO catalyst or rely on a manufacturer's guarantee.

PRESIDING MEMBER MOORE: Sorry.

MR. GRATTAN: Thank you.

HEARING OFFICER FAY: Tank you, Mr. Grattan. That moves things along. We're always looking for agreement.

MR. GALATI: And we haven't been able to find very much.

MS. POOLE: We're pleased to hear it.

DR. FOX: We're very pleased. That will save a lot of arguing.

CROSS-EXAMINATION

BY MR. GALATI:

Q Dr. Fox, doesn't the determination of compliance limit the Sunrise project on PM10 emissions to 9 pounds per hour?

A Yes, it does.

Q And if the Sunrise project were to exceed those limits they'd be in violation of that permit?

A Yes, if you caught them.

Q And is there anything that prohibits the district from asking for a source test at anytime?

A No, there's not, but they typically don't do that.

Q So you're speculating as to what the district will do in this case?

A Well, I know that the permit requires, in the case of PM10, a source test on start-up, a source test within six months, and thereafter on an annual basis.

Q But there's nothing that would prohibit the additional source test by the district, correct?

A There's nothing that would prohibit it.

Q And, again, you would be speculating if you said the district would not ask for a source test?

A I'm not entirely speculating, based on my experience with the San Joaquin Valley, they don't, on their own, trigger a lot of source tests because they're staff-limited.

Q Okay. Dr. Fox, who assumes the risk of meeting the 9 pounds per hour?

A Would you repeat that?

Q Who assumes the risk of meeting the 9 pounds per hour PM10 emission limit?

A The applicant. And the exposed public.

Q Understanding you disagree whether the district would actually catch a violation, but assuming the district did catch a violation of the 9 pound per hour PM10 emission limit, just for

purposes of my question, can we agree to assume that?

A Okay.

Q The district could take enforcement action, though, if they found that violation, couldn't they?

A Well, based on your -- the applicant's record with respect to NOVs, I'm not so --

Q Does the Sunrise -- excuse me --

A -- sure that enforcement would --

Q Excuse me, does the Sunrise project have any NOVs?

A Huh?

Q Excuse me, does the Sunrise project have any NOVs?

A Texaco does and --

Q Thank you.

A -- Texaco is one of the owners.

Q Thank you, I think that answers my question. My question to you was not whether or not somebody else has NOVs, my question to you was could the district enforce if they found a violation of PM10 hourly emission rate?

A They could issue an NOV.

Q And couldn't they also prohibit further

generation at that project based on those -- any violation?

A They could do that, as well.

Q Thank you.

MR. GALATI: I have no further questions.

HEARING OFFICER FAY: Thank you. Staff?

MS. HOLMES: I'm not sure if this is an operational impact or an indirect impact. I had a couple of questions about the -- and it may be affected, actually, by what's been discussed here, the CO as an ozone precursor. Is this the appropriate time to ask those questions?

PRESIDING MEMBER MOORE: They're back to back, so it's --

MS. HOLMES: Okay, I just had a couple of questions.

PRESIDING MEMBER MOORE: -- give it a try.

CROSS-EXAMINATION

BY MS. HOLMES:

Q Dr. Fox, you testified that the Commission should treat CO as an ozone precursor in this proceeding?

A I'm not sure that was my testimony. The

discussion of CO as an ozone precursor was put in there to address the frequent comments that are raised with respect to requiring a lower BACT level for CO.

And I was merely pointing out that CO has impacts other than just the air quality standard on CO.

Q And are you recommending that the Energy Commission take steps in this proceeding as a result of that?

A Not given that we have a CO catalyst on this project, no. I'm very happy to hear that it has a CO catalyst and that allays my fears.

MS. HOLMES: Thank you, then I don't have any questions.

HEARING OFFICER FAY: Any redirect, Ms. Poole?

MS. POOLE: Yes.

REDIRECT EXAMINATION

BY MS. POOLE:

Q Dr. Fox, based on your experience what PM10 levels have been permitted for other power plant projects?

A This is the only project I'm aware of where it is permitted at half of the vendor

guarantee. The neighboring LaPaloma project which uses ADB turbines, I believe, is permitted at 18.3 or 19. And the other projects that I'm involved in that are using GE turbines are all being permitted at 18 pounds per hour. This is the only one that I personally have seen which is using half of the vendor guarantee.

Q And do you think it's likely that the district will detect any violation of the PM10 limit?

A I think it's very unlikely given annual source tests, given Texaco's track record with NOVs and given the district's actions with respect to enforcing its regulations.

Q Thank you.

MS. POOLE: That's all.

PRESIDING MEMBER MOORE: Thank you. All right.

MR. GALATI: I do have some rebuttal.

MS. POOLE: Rebuttal? I believe the applicant has finished its testimony on direct operational impacts.

MR. GALATI: Correct.

MS. POOLE: They were the only party left to do that.

MR. GALATI: Yeah, and I think I'm allowed to rebut.

HEARING OFFICER FAY: Well, I mean that was a round on operational impacts. And I suppose the way we've been handling it, once a round is over, then applicant has a chance to rebut.

How long do you anticipate?

MR. GALATI: Just probably five minutes, less than five minutes.

HEARING OFFICER FAY: Okay, go ahead.

MR. GALATI: This question's for Mr. Stein.

DIRECT EXAMINATION

BY MR. GALATI:

Q Mr. Stein, doesn't the district, in its FDOC, reflect that it is comfortable that this project can meet the 9 pounds per hour of PM10 hourly emission rate?

A Yes.

MR. GALATI: No further questions.

HEARING OFFICER FAY: Great. Any recross? Okay. Fine.

We'd like to ask the parties now to give us an estimate of how long their direct is likely to take on the indirect impacts of the project.

PRESIDING MEMBER MOORE: Indirect and cumulative. Estimates.

HEARING OFFICER FAY: Fifteen minutes, staff?

MS. HOLMES: Five to ten.

HEARING OFFICER FAY: CURE?

PRESIDING MEMBER MOORE: So give me indirect first.

MS. POOLE: We may need up to an hour.

PRESIDING MEMBER MOORE: No. We're going to take 45 minutes per side, that's the cap. Constrain yourself to those and I'll hold firm on those time limits.

Then we're going to take -- we probably won't take more than a half an hour per side on cumulative. And then we're going to stop.

So, ready to rock and roll on indirect.

MR. GALATI: Can I just ask one question on that.

PRESIDING MEMBER MOORE: You certainly may.

MR. GALATI: Does that include the cross-examination time? We'll have 45 minutes for our direct and their cross?

PRESIDING MEMBER MOORE: That's total

time.

MR. GALATI: The only thing that I would like to inform the Committee is we've been informed that Sayed Sadredin can be available by telephone at 2:00 for any comments regarding indirect impacts and --

PRESIDING MEMBER MOORE: And do we know about the --

MS. HOLMES: I left a message for EPA and I told them we would like to --

PRESIDING MEMBER MOORE: We'll interrupt if --

MS. HOLMES: -- talk with them at 1:30.

PRESIDING MEMBER MOORE: -- if it happens, we'll interrupt. Okay.

Counselor, you're on.

MR. GALATI: Yes.

HEARING OFFICER FAY: Just a moment, let's go off the record a moment.

(Off the record.)

HEARING OFFICER FAY: Mr. Galati, indirect air quality impacts of the project.

MR. GALATI: We can have the record reflect that the panel is Mr. David Stein and Ms. Paula Fields. They have previously been sworn.

HEARING OFFICER FAY: The panel members are still under oath.

DIRECT EXAMINATION

BY MR. GALATI:

Q Ms. Fields, did you prepare testimony regarding the indirect impacts on air quality for this project?

A Yes, I did.

Q And was that previously filed?

A Yes, it was.

Q And I believe that was labeled as exhibit 49?

A That's correct.

Q And can you affirm that testimony under oath today?

A Yes, I can.

Q Do you have any changes or modification to that testimony?

A Not related to indirects.

Q Okay. Yeah, I apologize, I think you made all the changes to it at one time.

Okay, could you briefly summarize your testimony for the Committee?

A Certainly. I supervised and assisted in the preparation of the AFC and revisions and

responses to CEC and CURE data requests. And the Sunrise comments on the PSA, and the written testimony pertaining to air quality impacts from the Sunrise project indirect sources.

Indirect sources include construction and operation of the 700 new wells, and operation of TCI's water treatment facility 2-22 and Valley Waste wastewater facility in order to serve the Sunrise project.

I reviewed the staff's indirect impacts analysis and agree that there will be no significant impacts.

What I'd like to do next is simply review and provide some comments on our review of CURE's testimony in this regard related to indirect sources.

First of all, on the issue of NO2 impacts from well drilling, we disagree with CURE's conclusion that well drilling will violate the one-hour NO2 standard, and that impacts are significant because their calculations are based on flawed emission rates.

CURE's rates are flawed for a couple of reasons. First of all, the rates they used to calculate the emissions from well drilling are

higher than those allowed by the district's prohibitory rule number 2280.

And secondly, the USEPA has updated emission rates for these types of sources based on the rates that -- the emission factors that were used by CURE. The use of the new emission factors indicate no violations of the NO2 standard even when CURE's modeling approach is used.

The second issue is with regard to the water treatment facility VOC emissions. We disagree with CURE that either the treatment of the produced water or the disposal of the wastewater from the Sunrise project to Valley Waste will result in any significant impacts associated with VOC emissions.

With respect to the treatment of produced water, there are no sumps associated with the treatment of produced water for use in boiler feedwater. Therefore, there are no VOC emissions associated with water treatment sumps.

With respect to disposal of the wastewater from the Sunrise facility the facility's wastewater stream comprises primarily evaporative blow-down, compressor wash and drips and drains associated with the handling of

softened produced water.

The evaporative blow-down compressor wash uses only West Kern Water District water as makeup that contains no VOCs. The softened produced water will contain on average 1 ppm VOCs.

These low levels of VOCs will result in virtually no VOC emissions from the Sunrise wastewater.

We disagree with CURE's apportionment of Valley Waste emissions to the Sunrise project. Valley Waste VOC emissions are associated with existing open ponds and Sunrise's small incremental addition will not require new ponds nor change the surface area of the existing ponds.

The third issue I'd like to address has to do with hydrogen sulfide emissions from well operation. We disagree with CURE and do not believe that the H2S emissions from well operation are significant.

When CURE's estimates are corrected for the appropriate control efficiency and the correct number of wells, which is 455 production wells out of the 700 estimated, and even if tank emissions are included in the calculations, CURE's own modeling results indicate that the impact is

insignificant.

This is extremely conservative since CURE double counted the fugitive emission sources in their calculations. Even without correcting this error, and using CURE's average background measurements of H2S, with which we disagree, the maximum impact is less than the H2S ambient air quality standard of 42 mcg/cubic meter.

That concludes my summary.

MR. GALATI: The panel is available for cross.

PRESIDING MEMBER MOORE: I have a question for Ms. Fields.

EXAMINATION

BY PRESIDING MEMBER MOORE:

Q And that is the 42 mcg/cubic meter is published in what document?

A That's the ARB's ambient air quality standard for hydrogen sulfide in Title 17 in the California Code of Regulations.

Q And the year? Is that the current regulation, the one that is in --

A Yes, sir.

Q -- force right now?

A Um-hum.

PRESIDING MEMBER MOORE: Thank you.

HEARING OFFICER FAY: Staff, cross-examination of the panel?

MS. HOLMES: We don't have any.

HEARING OFFICER FAY: All right. CURE.

MS. POOLE: No questions.

HEARING OFFICER FAY: No questions. All right, thank you.

Staff, do you have testimony to offer on indirect impacts of the project?

MS. HOLMES: Yes, we do. We'd recall Mr. Joe Loyer.

HEARING OFFICER FAY: Has Mr. Loyer been previously sworn in this case?

MS. HOLMES: Yes.

HEARING OFFICER FAY: All right. I remind you that you're still under oath, Mr. Loyer.

DIRECT EXAMINATION

BY MS. HOLMES:

Q Mr. Loyer, could you briefly summarize your testimony with respect to indirect impacts?

A Sure. Staff looked at the indirect impacts for the Sunrise project. They include the oil field as it has been described by applicant,

which includes construction and operation. And we're doing operation at this point?

PRESIDING MEMBER MOORE: Yes.

HEARING OFFICER FAY: This is indirect impacts.

MS. HOLMES: Indirect impacts.

PRESIDING MEMBER MOORE: I'm sorry, boy, I answered that wrong.

MR. LOYER: Okay, let's see. And the wastewater treatment facility. The VOC emissions from the well field operation and the H2S emissions from the well field operation were investigated thoroughly by staff. And we found that there was no compelling evidence to suggest that there would be any significant impact from either VOC emissions or H2S emissions.

The wastewater treatment facility. Staff investigated the potential emissions -- additional emissions from the waste treatment facility and found no compelling evidence to suggest that there would be any significant impacts from the water treatment facility.

On indirect impacts, I believe that concludes staff's analysis.

//

BY MS. HOLMES:

Q Thank you. Mr. Loyer, on page 6 of exhibit 56, which is Dr. Fox's testimony there's a discussion about H2S impacts, and she explains, as I understand it, her analysis as including all 2000 wells within the three-quarter mile circle. Do you recollect that testimony?

A Yes, I do.

Q And were you present at workshops at which Texaco discussed what would happen to the steam generators that are currently in that area?

A Yes, I was.

Q And based on those discussions do you believe it would be appropriate to include all 2000 wells in the analysis?

A No, I do not.

Q Can you explain why not?

A The field steam generators at that time, and as far as I know currently, Texaco is not sure whether or not they will be moving those field steam generators anywhere. They're not sure if the field steam generators will go away entirely. They're not sure if they will stay where they are. They're not sure if they will move into a new area. They simply are not sure what they are

going to do at this point.

Q Thank you. And with respect to the discussion about the control factor for the tanks and wells, do you recollect CURE's discussion on that issue?

A Yes, I do.

Q And can you please summarize where you derived your control factor from?

A During the workshop with the district and all parties present, we discussed the preliminary determination of compliance and the staff PSA for the air quality section.

At that time the district staff stated in the workshop that the control method for the oil wells would effectively control vapors to 99.9 percent.

Q Thank you.

MS. HOLMES: Those, I think, conclude the staff's direct testimony, and Mr. Loyer is available for cross-examination.

HEARING OFFICER FAY: Applicant?

MR. GALATI: No cross-examination.

HEARING OFFICER FAY: CURE?

MS. POOLE: Yes.

HEARING OFFICER FAY: How much time do

you think you have on cross?

MS. POOLE: Maybe about 15 minutes.

HEARING OFFICER FAY: Okay.

CROSS-EXAMINATION

BY MS. POOLE:

Q Mr. Loyer, you were just referring to control methods that were discussed at a workshop down at the district. Is that well vapor control required in a district rule?

A There is well vapor requirements in district rules.

Q And do those requirements require vapor control to 99.9 percent?

A No. The control level required by rule is only 99 percent.

Q And to your knowledge is Texaco planning to shut down steam generators currently feeding wells in the three-quarter mile radius?

A They have identified that as one of the possibilities.

Q But they're not currently planning to do that, to your knowledge?

A To my knowledge they haven't identified what they plan to do with the field steam generators.

Q So they're not planning to shut them down right now to your knowledge?

MS. HOLMES: Objection. I think the witness has answered the question.

HEARING OFFICER FAY: Yeah, that's asked and answered.

PRESIDING MEMBER MOORE: That's sustained.

BY MS. POOLE:

Q In table 14 of your testimony which is page 24, --

A And 23.

Q And 23. It's just page 24 in my --

A Oh, --

Q The heading is on page 23. The well drilling estimates there, excuse me, the NO2 estimates from well drilling are based on CURE's PSA comments, correct?

A I'm sorry, you're going to have to be a little bit more clear what you're referring to.

Q On this table you have identified what you call the maximum construction impacts from a single well. And let's say in that column marked impacts, which is the third column.

I believe you state in here that that

number is drawn from CURE's PSA comments, is that correct?

A I believe the modeling analysis that led up to this impact was done by CURE. But I don't believe the CURE analysis included this particular impact. But I'm going to have to refresh my memory on this. I've been dealing with several other projects.

(Pause.)

BY MS. POOLE:

Q I may be able to help you.

A Yeah, please.

Q If you look on page 23, the sentence that begins directly under air quality table 13, says, CURE in their comments on the preliminary staff assessment estimated the emissions reported in air quality table 13, is that right?

A That appears to be correct. I think that is correct.

Q And then you talk about additional modeling analysis, and you say later in that paragraph that those modeling results which were performed by CURE are shown in air quality table 14.

A I'll take my testimony as read.

Q Okay. Now, do you have Dr. Fox's testimony in front of you?

A Which particular one?

Q The one that's been marked as exhibit 56, which is the air quality impacts.

A Yes, I believe that's this one here.

Q Yes, I'm going to ask you to refer to an attachment, which it doesn't like you have.

A No, I don't have that much strength.

HEARING OFFICER FAY: Which attachment, counsel?

MS. POOLE: Attachment 1 to portions of CURE's PSA comments.

Why don't you use mine.

MS. HOLMES: He's got one right here.

MR. LOYER: No, I -- okay.

BY MS. POOLE:

Q On page 17 of attachment 1.

A Okay.

Q Would you look at that table there, please. That identified the NO2 impacts from well drilling, correct?

A This is the unnumbered table?

Q Yes. It's the only table on page 17.

A NO2 one-hour averaging, 539 mcg/cubic

meter.

Q Right. That identifies the NO2 impacts from well drilling, correct?

A According to CURE it does.

Q And what is the modeled impacts listed there for NO2?

A 539 mcg/cubic meter. Is that the number you're referring to?

Q Yes, thank you. This differs from the impact that you listed in air quality table 14 as the total impact, correct?

A Yes, it does.

Q And that differs because you added 97 as a background while CURE added the number of 188, correct?

A CURE added 188 for a variety of reasons which I will let CURE discuss. And I added 97 as the background.

Q And 97 is only the NO2 background, correct?

A That is the NO2 monitoring background, yes, it is.

Q Is there ozone in the atmosphere around this project?

A There is likely to be ozone in the air

around the project.

Q Isn't it true that NO will react with ozone in the atmosphere to form NO2?

A Yes. It's a known reaction in air chemistry.

Q How much NO2 will that reaction form?

A Typically it's a very fast reaction, that's a near field event. The reaction will continue until the ozone is depleted, or the NO2 is depleted.

Q So it will form more than zero amount of NO2 if there's ozone in the background?

A It can.

Q If there's ozone in the atmosphere and NO is added, NO2 will be formed, correct?

A Yes.

Q Did you include that amount that would be formed from that reaction in your calculation of background impacts?

A No, I did not.

Q Have you imposed any condition requiring that wells be drilled one at a time?

A If I could just -- are we kind of done with this --

Q Yes, we're done with the table.

A Okay, good. I'd like to put this away. I'm sorry, can you re-ask the question?

Q Yes. Have you imposed any condition requiring that wells be drilled one at a time?

A No, I have not.

Q I'm going to ask you to suppose that two nearby wells are being drilled at the same time, and one is upwind of the other. Would both of those well drilling operations affect the downwind ambient air quality?

A Downwind ambient air quality. For CO? PM10?

Q For NO2 in particular.

A NO2. Downwind for NO2. Yeah, it's likely for a near field they would have some sort of impact.

Q Is it possible that the combined impacts would exceed the one-hour NO2 standard?

A I think that is speculative. And I don't know if I can answer that.

Q I thought we were done, but let me refer you back to air quality table 14 in your testimony where you identify the total impact from drilling one well in NO2 is 448 mcg/cubic meter.

A Yes, ma'am.

Q And the limiting standard is 470 mcg/cubic meter. That NO2 impact that you've calculated from drilling a single well is close to that limiting standard, is it not?

A Yes, it is.

Q Now, if two wells were being drilled at the same time, and one was upwind of the other, isn't it possible that the NO2 standard could be exceeded?

A It's a possibility, but there are several other contributing factors that would have to be taken into consideration. So, whether or not it would is anybody's guess until you measure it, monitor it, model it.

Q Did you model the possibility?

A No, I did not.

Q How many offsets has the air district required for the 700 new wells associated with this project?

A I'm not aware that the district has required any offsets at this point for any new wells that Texaco may be drilling in this area or any other.

Q So you can't confirm that emissions from the 700 new wells associated with this project

have been fully offset?

A I'm not aware that Texaco has proposed to actually drill 700 new wells to the district yet. So if you're asking me if they have provided mitigation for wells that they are not sure they're going to drill, I would say I have no knowledge of such mitigation being provided.

Q On page 25 of your testimony you assume a 99.9 percent control factor for vapor recovery on storage tanks, correct?

A Yes, ma'am.

Q What's your basis for assuming this control factor?

A That was previously identified in the workshop as the control measure that the district claims that they are imposing at this time.

Q I thought we were talking about vapors from wells at the workshop.

A They discussed with me that the same vapor controls are also put on the tanks.

Q Are you familiar with district rule 4623?

A You'll have to remind me what that one is.

Q That requires 95 percent vapor control

on certain storage tanks.

A Yes.

Q And that is a 95 percent control factor in that rule, correct?

A That's in the rule, yes.

Q Do all of Texaco's storage tanks currently comply with rule 4623?

A I didn't investigate all of Texaco's storage tanks.

Q Do you know of any that don't comply with rule --

MS. HOLMES: I'm going to object to this question. It goes beyond the scope of the witness' testimony. The witness looked at the 700 new wells that are proposed to be built. The witness did not examine Texaco oil field operations.

MS. POOLE: The witness is assuming that a certain level of emissions will come out of these storage tanks in his testimony. And I'm questioning that basis for that assumption.

HEARING OFFICER FAY: The blueprint limited the examination of indirect impacts to the 700 wells. So we'll sustain the objection.

//

BY MS. POOLE:

Q Are you aware of any impacts from hydrogen sulfide on oil field workers in the Midway Sunset Oil Field?

MR. GALATI: Again, I'd object as to relevance.

MS. POOLE: The relevance is that hydrogen sulfide impacts come from drilling new wells.

MR. GALATI: And --

MS. HOLMES: I'm going to join in this. This is not a worker safety or a public health --

MS. POOLE: I'm not asking a public safety or worker health question, I'm going to H2S emissions from oil wells.

MS. HOLMES: His testimony on --

HEARING OFFICER FAY: But it sounds like it --

MS. HOLMES: -- H2S emissions goes to whether or not there's a violation of the standard. That's the scope of the air quality testimony.

HEARING OFFICER FAY: Yeah, it sounds like it's beyond the scope and we just can't afford to deal with a general, we're dealing with

this specific project. Sustained.

BY MS. POOLE:

Q Do you know when the 700 new wells that staff has estimated will be associated with this project will be drilled?

A My understanding is that Texaco will be drilling these within the next, I believe it's five years.

Q I have here a record of conversation which was docketed on October 1, 1999. I'd like you to refer to that, please.

Could you please read the sentence that's marked with the blue mark?

A Could you --

MS. HOLMES: I don't even understand who this reported conversation is from.

MS. POOLE: Look at the front page.

MR. LOYER: I think it's this front page.

MS. POOLE: It's a record of conversation docketed by Marc Pryor.

(Pause.)

BY MS. POOLE:

Q Do you see the sentence that's been marked with a blue pen mark?

A Yeah. We should say that this is a conversation, report of conversation between Marc Pryor and Mervyn Soares.

Q Thanks. Would you please read that sentence that's been marked.

A You mean, under the plan?

Q Yes.

A Okay. Under this plan the wells are predicted to spread out over the six-year period from 1999 to 2004. The plan shows 65 percent of the wells as oil production wells, and the remaining 35 percent as steam injection wells.

Is that all?

Q And I guess I should ask you to read the first sentence to identify what the plan is.

A Oh, the strategic plan that was used to generate the area of influence radius and number of new wells went through 2004. Okay.

Q Thank you.

MS. POOLE: That's all my questions.

HEARING OFFICER FAY: Thank you. Any redirect?

MS. HOLMES: Can I have a moment?

HEARING OFFICER FAY: Sure.

MS. HOLMES: I just have one question.

PRESIDING MEMBER MOORE: One redirect.

MS. HOLMES: Yes.

REDIRECT EXAMINATION

BY MS. HOLMES:

Q Mr. Loyer, there was discussion earlier this morning about various control efficiencies. Could you tell me what your understanding is of the basis of the district's statement that a 99.9 percent control efficiency is required?

A The basis of that statement is it was related to me by the district is that that is their current BACT control level.

PRESIDING MEMBER MOORE: B-A-C-T?

MR. LOYER: Yes, sir.

MS. HOLMES: Thank you. I have no additional questions.

HEARING OFFICER FAY: Applicant?

MR. GALATI: No.

HEARING OFFICER FAY: CURE?

MS. POOLE: No.

PRESIDING MEMBER MOORE: Okay, it's five after 12:00. We'll take a half an hour. At 12:35 we'll be back and start again.

HEARING OFFICER FAY: We're off the record now.

(Whereupon, at 12:05 p.m., the hearing was adjourned, to reconvene at 12:35 p.m., this same day.)

--o0o--

AFTERNOON SESSION

12:37 p.m.

HEARING OFFICER FAY: Please begin.

PRESIDING MEMBER MOORE: Right, sorry.

MS. POOLE: Are we ready to begin?

HEARING OFFICER FAY: Yes.

PRESIDING MEMBER MOORE: Ready to go.

Ms. Poole.

DIRECT EXAMINATION

BY MS. POOLE:

Q Dr. Fox, --

A Yes.

Q -- have you reviewed the other parties' testimonies regarding indirect impacts?

A I'm sure I have.

Q And --

(Laughter.)

DR. FOX: I don't have any specific recollection at the moment, however.

(Laughter.)

MR. GALATI: Then would it be fair to characterize you agree with the --

(Laughter.)

BY MS. POOLE:

Q To the best of your recollection are

there some items you would like to address?

A Yes. Given my 45-minute time limit I would like to focus on two topics only, and what I'd like to do is combine my direct with rebuttal of both parties.

And the first thing I'd like to talk about is the drill rigs. The applicant did an analysis of drill rig emissions and found no significant impact.

We did our own analysis using the emission factor from AP-42, which is jargon for EPA's emission estimating bible. And in our analysis we used the applicant's stack parameters, which I believe are not representative of drill rigs, but we nevertheless used them because it provides a worst case.

And the only changes we made to their analysis was we used the AP-42 emission factors, and we used a different MET data set. But the MET data set's not on the table here because we're dealing with one-hour impacts. And the MET data set doesn't really make any difference.

In our modeling we found that the drilling of a single well would exceed the state one-hour NO2 standard.

Staff used our analysis in their FSA and I believe table 14 on pages 23 and 24 that counsel was asking Mr. Loyer about this morning, and that analysis is our analysis with one exception. And staff, in picking up the numbers from our PSA comments did not include one component of the NO2.

I need to give you a little background on this NO2 issue, because it's a little esoteric.

When you burn a gas in a turbine you form a mixture of nitrogen oxides. Basically NO, and NO2. And the state standard is on NO2.

And there are three pieces that you have to add together to get the concentration from turbine exhaust. The first piece is referred to as thermal NOx, and that's the amount of NO2 that forms in the stack. So you have a certain amount of NO2 at the stack as it comes out.

The second piece of it is the NO that is in the stack gases that are emitted react with ozone in the atmosphere to form an additional amount of NO2.

And the third piece is the background NO2 concentration in the area. And in order to get the NO2 impact from a turbine you have to add those three pieces together.

Staff added two of them together, the background NO2 and the thermal NOx from the stack. But they did not add the increment due to the reaction of NO in the exhaust gases with ozone in the atmosphere. And when you add that piece in you find that the drilling of a single well exceeds the state one-hour NO2 standard.

This method I just described of adding three pieces together is a standard method that's used throughout California. It's been adopted by CARB. It's based on a referee journal article called, A Review of Techniques Available for Estimating Short-Term NO2 Concentrations.

That's an article that was published in the Journal of the Air Pollution Control Association, 1979, page 812 through 817. And in there there's a section called ozone limiting method. And that is the method that has been adopted by CARB and is used for modeling NO2 impacts in California.

When you make that correction in the staff's analysis what you have is a violation of the state standard from the drilling of a single well.

This project will drill 700 wells over a

six-year period, which means that you have the potential for violating the standard up to 700 times. Actually more than that, because this is a one-hour standard, and the drilling takes place in the course of an eight- to 12-hour day. And 36 percent of the time you have meteorological conditions that would lead to a violation of the standard.

So you could exceed the standard well over 2000 times over the course of that six-year period.

Now, the applicant critiqued our analysis of drilling emissions. And one of the things that they say in their written testimony and that Ms. Fields just stated in her direct, was that we used flawed emission factors. And that they used more recent emission factors. That's absolutely false.

The emission factors that the applicant used in their calculations are not for drillings at all. They're for construction equipment. And I'd like to remind you of an irony.

In the last air session that we had here we were talking about construction emissions. And in that discussion of construction emissions what

we learned was the applicant modeled construction emissions using stack parameters for drill rigs.

Why? Because drill rig stack parameters grossly underestimate the impacts of construction emissions.

Here we come to the indirect session and we're dealing with drill rigs, you would expect the applicant to use emission factors for drill rigs, right? No. The applicant is using emission factors for construction equipment.

And there's a big difference between a drill rig and construction equipment. First, the emission factors that they relied on were based on 1991 to 1998 engines. Most drill rigs use old outdated dirty engines with no controls on them.

The second big difference is the operational mode of a drill rig as opposed to construction equipment. Drill rigs have to drive half a million to a million pounds of steel into the ground, whereas construction equipment clearly doesn't do that, you know, you have start/stop, and you're digging dirt and pushing dirt around.

So, the difference in the operational mode and the age and pipes of engines that you find result in very different emissions factors.

So it is quite inappropriate to use emission factors for construction equipment to estimate the impacts from drill rigs, which is what has happened here.

Another problem with the analysis that the applicant did is they applied a mode factor to calculate a one-hour impact. A mode factor represents the percent of the time that the engine is operating at full load. And it's appropriate to use a load factor when you're looking at a long period of time like over a 12-hour day, or over a month. Because clearly, over an extended period of time, a drill rig is not going to be operating at full bore continuously.

But when you're estimating hourly average impacts, it is entirely feasible to expect that a drill rig would operate full bore for a solid hour. So it's really inappropriate to take an emission factor for construction equipment and multiply it by 65 percent, which is the load factor.

So what we have here is a situation where the applicant has under-estimated the emissions from drill rigs by at least a factor of two. And when you correct those problems in the

applicant's analysis, you end up at the same place that we ended up, concluding that drilling of a single well will result in exceeding the one-hour NOx standard.

Another point about the drill rigs that I'd like to mention is the applicant and us used for drill rigs stack parameters that are really not very representative. They modeled the drill rigs as four point sources so they're widely spaced. No we all know that a drill rig is a platform that's got three or four different diesel engines on it. There's a pump, there's a generator, there's a couple three or four engines, each 200 to 500 horsepower in size, sitting on a single platform. And all of the individual engines are fairly close together.

The applicant modeled the drill rig as four widely spaced point sources. Another problem is the applicant modeled the stack from the drill rigs as being 15 feet high. The stacks on these rigs are usually three to 12 feet high. The higher the stack the more dispersion and the lower the concentrations.

Another problem with the applicant's stack parameters is they assumed a 12-inch

diameter stack. The stacks on drill rigs are three to four inches.

And the final problem is they assumed that the stack was vertical and there was a substantial amount of vertical momentum going up that stack. I don't know if any of you have ever seen drill rigs, but the stacks on the engines on these rigs either have goosenecks that point like this, so the gases come out and move horizontal to the ground rather than shooting straight up. Or the stacks, themselves, are horizontal to the ground. So you have very little vertical momentum and very poor dispersion of the gases.

So both of our analyses, both CURE's analysis and the applicant's analysis, because of the specification of stack parameters, actually under-estimate the impacts. And the real impacts are substantially higher than even what we have suggested.

And then as to the issue of the MET data set, as I said before, we used McKittrick, they used Fellows. But when you're dealing with one-hour impacts it really makes no difference. We modeled the drill rig impacts using both McKittrick and Fellows.

With McKittrick you get 539; and with Fellows you get 522 mcg/cubic meter, both of which handily violate the state one-hour standard of 470 mcg/cubic meter.

I believe that summarizes my comments on drill rigs.

Now, I'd like to go to well operational impacts. And to help you understand that I'd like to discuss briefly a flow diagram I have in front of me which is from exhibit 3, I believe.

Q Attachment 3?

A Attachment 3 -- attachment 2 to my air quality testimony --

MS. POOLE: Which is exhibit 56.

DR. FOX: And if you don't have it in front of you I have copies which I can give you so you can follow along.

PRESIDING MEMBER MOORE: That's probably easier. The one you had up on the slide?

DR. FOX: It's similar, but it's a different figure. I thought I had an overhead of it, but I have so much paper over here I can't find it.

This is labeled figure 2, central treating system for processing onshore heavy crude

oil from TEOR production. TEOR is thermally enhanced oil recovery production. And that's relevant in this case, because as you know the steam from the Sunrise project will be used for TEOR production of oil within a three-quarter mile circle around the plant.

And the purpose of this figure is to demonstrate that much more is involved in TEOR production than the simple drilling of a well and the pumping up of a mixture of oil and gas. There's a large number of steps involved.

The oil/water mixture comes up. It goes through a number of separators. You can see just by glancing at this, there's separators, there's sumps, there are heater treaters which is a piece of fired equipment which is used to break tight emulsions of oil and water.

And then finally you end up storing the product in a tank and disposing of waste and gases.

But the point of this is to show that there are a number of steps involved in the process in addition to the wellhead, itself. There are separators, there are tanks, there are sumps and there are heater treaters.

And most of these pieces of equipment have emissions associated with them. And the only thing that we've been talking about here is the drilling of the well, and the emissions from the well, itself.

There are, indeed, a large number of other sources of emissions that have so far not been dealt with in these proceedings. And we were not able to calculate emissions or do any estimating for them, because Texaco refused to produce the data that we needed.

I would just like the record to show that the remarks that I'm going to make about hydrogen sulfide from the oil well represent a substantial under-estimate of what the actual emissions are, because they don't include most of these sources.

MR. GALATI: Again, I would like to just make the record clear on the comment about Texaco refusing to give data. That was the subject of a motion to compel. That motion was upheld by the Committee that that information was not necessary or relevant to their decision in this proceeding.

PRESIDING MEMBER MOORE: Thank you.

DR. FOX: Okay. In my written testimony

I estimate hydrogen sulfide emissions from a few of the components on this figure we were just talking about. I estimate emissions from the well vent, itself, from the fugitives pumps and pipes and from the tanks.

And my estimate of hydrogen sulfide emissions total from assuming 700 wells, 29.6 tons per year from only a few of the many potential sources of hydrogen sulfide.

We then used standard techniques to model the emissions. They are fugitive sources so we modeled them as a volume source, and we calculated an incremental hydrogen sulfide concentration of 30 mcg/cubic meter.

Based on the record that the internal memorandum that was read into the record during the cross of Joe Loyer, I now know that 65 percent of those wells are production wells and the other 35 percent are steam wells. So the estimate in my testimony is high because I assumed that all 700 wells were production wells, because we were unable to get any additional information from Texaco.

Adjusting for the fact that 65 percent are production wells, the model incremental

increase in concentration would be 18 mcg/cubic meter. If you add that to the average measured H2S concentration based on our field studies of 33, you get an ambient H2S concentration of 51 mcg/cubic meter.

The state H2S standard is 42 mcg/cubic meter. So looking at just a portion of the hydrogen sulfide emissions from oil field operations within the three-quarter mile radius, which is fair game for indirect impacts, results in an exceedence of the hydrogen sulfide standard which is a significant impact.

Now, in staff's testimony staff took difference with my calculations. And staff made two changes to them. First, staff argued that the tanks that I had included in my calculation should be considered in cumulative impacts and not in indirect impacts. I disagree with that.

The blueprint is very clear that within the three-quarter mile radius the 700 wells plus appurtenant facilities are a part of the indirect impacts. And tanks, as you can clearly see from figure 2, which is the diagram of a TEOR process, are clearly appurtenant facilities associated with TEOR production. And I believe it is appropriate

to include those tanks in an indirect impact analysis.

Further, even though staff argued that the tanks should be part of cumulative, they in fact did no analysis of hydrogen sulfide emissions from the tanks in their cumulative impact analysis.

The other criticism that staff has was that I had used the wrong control efficiency for well venting. In my calculations I assumed that the wells were vented and that 99.5 percent of the hydrogen sulfide was removed by a vapor recovery system.

Staff argued that it should be 99.9 percent, and I believe you just heard the discussion that the basis of that was statements made by the San Joaquin Valley during a workshop, and that the 99.9 percent represents BACT.

I'd like to make several comments on that. First, the BACT determination is based on volatile organic compounds, or VOCs, not hydrogen sulfide. The removal efficiency for hydrogen sulfide and VOCs are different.

The ability of a vapor recovery system to burn a substance depends on the heat of

combustion of that substance. Hydrogen sulfide has a very low heat of combustion compared to VOCs like methane, ethane, propane. They heat of combustion of VOCs present in these gases is like 20 Btus per pound, while the heat of combustion of hydrogen sulfide is like 6.5 Btus per pound.

Therefore the removal efficiency of hydrogen sulfide through a vapor recovery system would be substantially lower than for VOCs. And the number that staff was referring to was for VOCs.

The second important point to realize is that the BACT determination is for new equipment undergoing permitting. The vapor recovery systems in existence in the oil field are not new equipment, and would not have had to comply with that BACT determination.

And then finally in response to data requests posed by staff, Texaco responded that the control efficiency for their vapor recovery system was 99 percent.

And then lastly in Larry Allen's remarks when he appeared before you he spoke of the San Luis Obispo County's experience with vapor recovery systems for these wells. And I recall

that he stated that they typically achieved 90 to 95 percent VOC reduction. And that in their calculations they often use a number much lower, 80 to 85 percent --

MR. GALATI: And I would object to that testimony. That was not testimony in this proceeding. It was comments by an agency not subject to cross-examination.

MS. POOLE: We can refer to comments --

HEARING OFFICER FAY: Yeah, I think we should correct the record that it was not testimony.

BY MS. POOLE:

Q Just go ahead.

A Anyway, in sum, I used 99.5 percent which I think is far too high in this case. I felt like I was being very conservative by using 99.5 percent. I think a much more defensible number would have been about 90 percent, and the actual emissions of hydrogen sulfide are probably much higher than what I represented them to be. I was trying not to overstate this issue.

And then finally I think I heard Ms. Holmes ask Mr. Loyer a question or make a statement that suggested that my H2S calculations

included 2000 wells. I did two sets of calculations. I calculated indirect impacts due to this project alone. And then I also provided a calculation for cumulative impacts.

And in the cumulative analysis it's appropriate to consider all 2000 wells. For the indirect impacts that I've been talking about here, the impacts in which you get a 51 mcg/cubic meter exceedence of the standard, I am only referring to 65 percent of the 700 wells. I did not use those calculations based on 2000 wells in any of my conclusions.

And the only other remark that I would like to make is, as I said, these comments that I'm making with respect to hydrogen sulfide refer only to a small number of the potential sources of hydrogen sulfide within the three-quarter mile radius. There are other sources that I did not take into account because I did not have the data I needed to make the calculations.

Q Does that conclude your direct testimony?

A I believe it does. I think my written testimony stands for itself. And that summarizes the rebuttal I wanted to make.

Q Thank you.

MS. POOLE: The witness is available for cross.

HEARING OFFICER FAY: Mr. Galati.

MR. GALATI: Yes.

CROSS-EXAMINATION

BY MR. GALATI:

Q I want to go to, Dr. Fox, your drill rig, so well drilling impacts. You testified that it was inappropriate to use a load factor for well drilling?

A Yes, for one-hour impacts, not for daily or annual average or monthly.

Q You testified that a drill rig typically has more than one diesel engine?

A Yes.

Q Do you know why it has more than one diesel engine?

A There's more than one function going on. There's a generator, a pump.

Q Yeah, would it be fair to characterize that one generates a pump, one drives and turns the steel, and one is used for the winch to lift things out of the ground?

A Yes.

Q So, if you were drilling, going full bore, as you suggested, you wouldn't be lifting steel out of the ground using the engine that powers the winch, would you?

A No.

Q So it's appropriate to not consider all three engines operating at full bore for a one-hour impact, correct?

A Not based on the CARB -- there's a CARB scenario that's on their website in conjunction with the implementation of regulations for the diesel PM10 regulations.

And I believe that that scenario shows that all of those engines will operate simultaneously for at least eight hours in a day. Granted, during portions of the day you would have two of the engines running versus three, or one versus two. But there are at least eight hours of overlap in a day in which all of the engines would be running.

Q Okay, I understand you said it was appropriate to use a load factor for a daily?

A For a daily, yes.

Q But my point is that it's physically impossible for all three engines to be running at

the same time, because there would be no use for at least one of them?

A No, I don't agree with that. Not based on the CARB scenario.

Q Okay. Let's say you're no longer drilling and now you're pulling steel out of the ground. You wouldn't be operating the engine at full bore turning the steel and driving it into the ground, correct?

A Right.

Q And you probably wouldn't be pumping drilling mud into the ground at that same time, right?

A Right.

Q Thank you. Still working with well drilling, there's well drilling currently going on in western Kern County?

A Yes.

Q More than one operator?

A Yes.

Q Probably more than one rig going on at one time?

A Certainly.

Q There's other sources of NOx in --

A Yes.

Q Has there been any violation of the NO2 one-hour standard recorded in the western Kern County?

A I'm not aware that there's any measuring stations in the middle of the oil fields.

Q How about the measuring station at Fellows?

A That's the MET station that was formerly operated by the West Side Operator?

Q And there was no measurement of the one-hour violation of the NO2 standard at that station, was there?

A No, there was not.

Q Thank you. Do you have any idea how many wells are operating in western Kern County?

A No.

Q Do you have any idea how many wells are being drilled at the same time in western Kern County?

A Not as I sit here. I could get it out of my files.

Q I want to move to well operations. You referred to attachment 2 to exhibit 56, which is your testimony. And you had some discussions about figure 2, called central treating system for

processing onshore heavy crude oils from TEOR production.

A Yes.

Q That's not a schematic of the TCI operation, is it?

A No, it's generic.

Q Okay. In fact, isn't the source reference a 1980 reference as modified in June 1988?

A Yes.

Q Do you have any understanding of whether or not operations, typical operations in oil field may have changed since 1988?

A Based on my field trip to the Sunrise site and discussions that I had with Texaco employees, I believe that the operations shown on this figure take place in the Midway Sunset oil field today. I believe there are oil/water separators, I believe there are heater treaters, I believe there are steam generators. I believe there are tanks. I believe there are sumps. I believe there's a vapor recovery system.

Q And that's based on information given to you by TCI employees?

A Yes. I asked quite a few questions on

that field trip and that's what it was going at.

Q Okay. Is there any reference method for testing H2S in ambient air?

A Pardon?

Q Is there any reference method for testing H2S in ambient air?

A I believe that EPA has a TO series method that's used.

Q Does CARB have any reference method for testing H2S in ambient air?

A To the best of my knowledge CARB does not have a reference method for testing hydrogen sulfide in ambient air. They have a reference method for testing hydrogen sulfide in stack gases. Or at least there's not one indicated in the index to their methods on their website.

Q The Jerome sampler is not a CARB approved method for testing H2S in ambient air, is it?

A No, it's not a CARB approved method, but I have used data from Jerome methods in testimony before juries in courts of law and it has been --

Q Thank you.

A -- accepted.

Q Thank you. Are you familiar with Title

17 California Code of Regulations, Article 2, ambient air quality standards?

A I am familiar with the ambient air quality standards. I don't know them by that name.

Q You mentioned that it was your opinion that the 700 new wells, and again I want to direct your attention, 465 production wells that the crude oil would be directed to old equipment, is that -- was that your testimony earlier?

A Yes, existing oil field equipment.

Q Would you agree that if a well was directed to new equipment that that would reduce the emissions?

A Assuming that the most current BACT levels were complied with, and assuming that BACT for a vapor recovery system is indeed 99 percent, as Mr. Loyer testified to, I personally don't know that to be a fact. But if it was directed to a vapor recovery system with a verified control efficiency of 99.9 percent, that would certainly go a ways to reducing the emissions, yes.

Q Okay, so that would be a yes, then?

A That's a yes, with --

Q Okay, thank you.

A -- with the caveats.

Q And --

A And assuming the 99.9 percent is for hydrogen sulfide and not just VOCs.

MR. GALATI: I don't have any further cross-examination for this witness.

HEARING OFFICER FAY: Staff.

MS. HOLMES: No questions.

HEARING OFFICER FAY: Redirect?

MS. POOLE: May I have just a moment.

(Pause.)

MS. POOLE: Ready for redirect?

HEARING OFFICER FAY: Proceed.

REDIRECT EXAMINATION

BY MS. POOLE:

Q Dr. Fox, to your knowledge is Fellows in the Midway Sunset oil field?

A No, it's not.

Q And there was discussion about three separate diesel engines on a drill rig. Can you explain whether those three engines would operate in a one-hour period?

A I believe based on the most recent CARB drilling scenario, which I think is dated January 17th, that there would be at least eight hours

over the course of drilling a well in which all three engines would be used simultaneously. And certainly over a one-hour period.

Another important factor there is all of these calculations were based on the assumption that the total horsepower on the rig was 1500. And if you look at the CARB scenario you find that for an average oil well going to a depth of 1800 feet, the actual horsepower can be quite a bit higher than 1500.

Another important point about these drill rigs is all we've been talking about here is the drilling of the rig. Well, once the well is in place there is follow-up servicing --

MR. GALATI: I'd have to object that it exceeds the scope of cross-examination. I crossed exactly on the operation of those three engines.

MS. POOLE: There was some --

MR. GALATI: And now she's talking about how the drill rig may drive, where it may go. And what happens after drilling.

HEARING OFFICER FAY: Yeah, does this relate to whether those three engines operating simultaneously?

MS. POOLE: Okay.

HEARING OFFICER FAY: Withdrawn?

MS. POOLE: Yes.

HEARING OFFICER FAY: Objection sustained. Move on.

MS. POOLE: That's all I have.

HEARING OFFICER FAY: Okay. Good. Any recross?

MR. GALATI: No recross.

HEARING OFFICER FAY: Staff?

MS. HOLMES: No.

HEARING OFFICER FAY: Okay, thank you. That concludes --

MR. GALATI: I do have rebuttal, though.

HEARING OFFICER FAY: Oh, you have rebuttal.

MS. POOLE: I have to object again. When did we suddenly change the order so that the applicant routinely gets rebuttal after everybody has completed their testimony on these topics?

HEARING OFFICER FAY: Well, I think we've had rebuttals throughout the case, as I recall.

MS. POOLE: Well, we've all, in our direct testimony, been provided the opportunity to rebut the written testimony. But we haven't been

following this procedure where the applicant gets to have another round after everybody else has testified, to testify again.

MR. GALATI: Actually, --

HEARING OFFICER FAY: Of course, you can rebut what they said on direct, and they can't until they hear what you've said on direct. So I think it's reasonable, especially since the applicant bears the burden in the case.

Let's go, but keep it brief.

MR. GALATI: Thank you. And I'll direct this question, I'll let the panel decide how they're going to answer the question, who's going to answer the question.

DIRECT EXAMINATION

BY MR. GALATI:

Q With respect to Dr. Fox's testimony regarding the modeling that was done by the applicant for well drilling, do you have any comments specifically addressing what she has raised in the modeling method and approach?

MS. FIELDS: I guess what I'd like to do is just clarify the fact that we didn't model well drilling impacts. We simply used CURE's modeled impacts and made some adjustments.

MR. STEIN: Let me also add that the value that CURE has used which -- the procedure they've used, which is to take a thermal component of NO2 and then add it to an assumed simultaneous background concentration of NO2 and ozone defies the fact that there is available actual measured values of both species that are available to conduct such an analysis.

So by taking this 188 ppm and arbitrarily adding it hour after hour to each model, the hour of impact, they are over-stating the impacts from these pieces of equipment.

In fact, the ozone values and the NO2 values do change hour by hour. And it is not appropriate to simply select a single value and apply it uniformly. It may be a very conservative approach, but it's certainly not a refined technique within the construct of the ozone limiting method.

MS. FIELDS: I guess I would also like to clarify, too, regarding the emission factors that we used for well drilling which Dr. Fox said were not appropriate, that the AP-42 factors were better because they were specifically for well drilling equipment.

The reference that I have cited in my written testimony is a 1998 USEPA document entitled, Exhaust Emission Factors for Nonroad Emissions Modeling, Compression Edition. And it is based on emission factors developed on engine testing conducted from 1991 through 1998.

Not necessarily equipment manufactured during those years, but testing done during those years. And it does apply to all nonroad engines. And I was assuming that well drilling equipment were nonroad engines.

So, we still stand by our use of those emission factors.

MR. GALATI: Now, with respect to Dr. Fox's testimony on well operations, and H2S emissions, do you have any comments regarding that testimony?

MR. STEIN: Yes, I do. I'd like to point out that Title 17 of the California Code of Regulations is the regulation which sets forth the California ambient air quality standards.

And those regulations specifically identify a reference method for H2S in ambient air. In fact, if you were to think about it practically it would not make sense for an agency

to adopt an ambient air quality standard for which they did not have a reference method to determine compliance.

So, it is routinely done and common practice for this agency to adopt not only a standard, a numerical standard, but also a reference method for purposes of determining compliance with it.

And there is, in fact, one for H2S --

HEARING OFFICER FAY: This agency, Mr. Stein, is CARB?

MR. STEIN: Is CARB. And it's in Title 17 of the California Code of Regulations. The section -- it's in division 3, chapter 1, subchapter 1.5, article 2, section 70200, which is the table of standards.

That standard is, in fact, listed as cadmium hydroxide extracting method. And I would note for the record that the gold film method that was used by CURE to measure H2S is not a cadmium hydroxide extracting method.

Furthermore, there has been, to my knowledge, no evidence presented in the record to suggest that this is an equivalent procedure to that method.

In addition, I would note that the measurements conducted by CURE for background H2S are 24-second samples. There is not a single measured value that is a full one-hour average. And so their use of this 33 mcg/cubic meter, which is a mishmash of 24-second snippets of time in the oil field is simply inappropriate and not representative of an integrated sample for a single one-hour period. And it can't be used to represent background for a one-hour period.

We don't know what the one-hour average is, but it's certainly not any composite of averages taken from CURE samples, because none of them are one-hour integrated averages.

MR. GALATI: That ends my rebuttal.

HEARING OFFICER FAY: Okay. Staff, any questions?

MS. HOLMES: No questions.

HEARING OFFICER FAY: CURE.

MS. POOLE: Yes.

CROSS-EXAMINATION

BY MS. POOLE:

Q Mr. Stein, I've just given you a copy of the description of the ozone limiting method which is in the journal that Dr. Fox referred to

earlier. Would you please read the steps 1 through 4 that are marked there into the record.

A Yes. First a standard dispersion model is used to calculate NOx max. NOx max is separated into two components, a thermal conversion portion for combustion sources this is estimated to be 0.1 times NOx max be the remaining NOx subject to the conversion by ozone is equal to .9 times NOx max. If the ambient ozone level is greater than .9 NOx max then assume that all of the NO is converted to NO2. NO2 max equals NOx max.

If .9 NOx max is greater than ambient, ozone ambient, then set NO2 max equal to 02 --

PRESIDING MEMBER MOORE: Counsel, --

MR. STEIN: -- 03 ambient --

PRESIDING MEMBER MOORE: Hang on. What are you doing? Why are you having him read that in? Why don't you just reference it and hand it to me in a Xerox? Is there another game going on?

MS. POOLE: Well, I'd be happy to do that, but we've had --

PRESIDING MEMBER MOORE: Well, I'm not an air chemist, I'm not a soil chemist, I'm not a water chemist, I'm an economist. But I can read

numbers. Why are you doing it this way?

MS. POOLE: I would be happy to provide this into the record as an exhibit.

PRESIDING MEMBER MOORE: And it's not just directed at you. I mean, other -- perhaps I'm just missing something here when we have the opposing witness -- I don't know whether it's to, you know, make someone look like they're coming over to your side or what. But, you know what, we're all adults here. I can take tables if they're --

MS. HOLMES: I'm going to object if there's going to be a proposal to identify a new exhibit at this late date that gets introduced into the record.

PRESIDING MEMBER MOORE: I don't want to identify a new exhibit. I'm just saying, -- go ahead and finish --

MR. STEIN: I'm not sure where I left off.

PRESIDING MEMBER MOORE: But I think if -- I'm sorry, Ms. Hough, but if my point was too esoteric, you know, we can all discuss it after this hearing is over. But I think everyone's getting what I'm saying. Go ahead and

continue.

MR. STEIN: If 0.9 times the NOx max value is greater than ozone ambient, then set NO2 max equal to ozone ambient plus 0.1 times NOx max.

Four. NO2 max computered for the point source is added to the NO2 background. I'd just note that this is entirely consistent with what I was saying, which is that one should be taking hour by hour measurements for purposes of applying this procedure. There's --

MS. POOLE: Thank you, Mr. Stein. This is also for Mr. Stein. What's the lower limit of detection for the cadmium hydroxide method?

MR. STEIN: I don't know.

MS. POOLE: Is this method portable?

MR. STEIN: I don't know.

MS. POOLE: At the previous hearings you introduced a community monitoring plan for Avila Beach into the record. Isn't it true that within that community monitoring plan CARB approved the use of the Jerome equipment for the Avila project for monitoring H2S?

MR. GALATI: I don't know if that testimony was elicited earlier of Mr. Stein. I think you mischaracterized his testimony. I don't

think he testified to those sections of the Avila Beach community plan that you are --

MS. POOLE: No, but he would testify to the fact that CARB had not proved the use of the Jerome equipment to measure H2S. And I'm asking him, whether in the community monitoring plan CARB and other agencies approved the use of the Jerome equipment to measure H2S.

HEARING OFFICER FAY: The Jerome equipment, was that the gold foil method referred to by Mr. Stein?

MS. POOLE: That's correct.

MR. STEIN: I don't know the answer to that question.

MS. POOLE: Ms. Fields.

MS. FIELDS: Yes.

MS. POOLE: In the nonroad emission factors which you used in the introduction it states, to better characterize emissions for more recent precontrolled engines, EPA analyzed available emission test data on 1988 to 1995 nonroad diesel engines.

Does that change your testimony?

MR. GALATI: Excuse me, just a minute, excuse me. Counsel, what are you reading from?

MS. POOLE: I'm reading from the document that Ms. Fields used to estimate her drill rig emissions.

MR. GALATI: If you have a copy and you can allow Ms. Fields to refresh her recollection, or even verify it is the document she used.

MS. FIELDS: It appears to be the document that we used, yes. And it says test data on 1988 to 1995 nonroad diesel engines.

MS. POOLE: And does that change your previous testimony?

MS. FIELDS: No.

MS. POOLE: Thank you. That's all I have.

HEARING OFFICER FAY: Thank you. That concludes our testimony on indirect impacts, air quality impacts.

Okay, now I'd like to ask Mr. Pryor if he knows, do we have any connection with EPA at 1:30? We don't.

MS. HOLMES: I talked with EPA and they think it's sufficient that I just relay to the Committee and the parties where they are in the process of resolving the violations. And when we get to -- I don't know if you want me to discuss

that now, or if we can discuss it at the time when we talk about scheduling matters, it doesn't matter.

PRESIDING MEMBER MOORE: This is as good a time as any.

HEARING OFFICER FAY: We're at a break between the end --

PRESIDING MEMBER MOORE: Yes.

HEARING OFFICER FAY: -- of indirect and the beginning of cumulative.

PRESIDING MEMBER MOORE: Caryn, could you identify who you talked to?

MS. HOLMES: Yeah, I talked with Rob Mullaney, who I believe is with their office of counsel. He's the person who did most of the talking in the conversation we had at the previous hearing.

He said that EPA had sent out a letter requesting quite a bit of information. That Texaco had made a preliminary filing with some of the data. He said that he was encouraged by the fact that they would seem to want to resolve issues, but that they had -- some of their concerns were actually stronger now than they had been before.

I asked what that meant in terms of time and he said he thought that if, with the indication that he'd had so far that Texaco wanted to move on getting the issues resolved, that we were talking anywhere from weeks to some months. But certainly not stretching out into the years timeframe, which was my concern.

So he wasn't able to be more specific than that, and I'm sorry that he wasn't able to talk to you directly.

So, it sounds to me as though what they're telling us is that they believe that the issue could be resolved within a few months. But that's my interpretation of weeks to some months.

HEARING OFFICER FAY: Do you have an opinion of the impact on this proceeding?

MS. HOLMES: I think staff, when we get to the -- I can do it now, but we do have a -- staff does have a recommendation about how we should proceed from here in light of that information. Is that what you're looking for?

HEARING OFFICER FAY: Are you ready to give the recommendation now?

MS. HOLMES: That's fine. It appears to us that the violations are obviously in no way

related to the Sunrise facility, which obviously isn't up and operating yet. It doesn't appear to us that there's any way in which the resolution of the violations could have any impact on the conditions that would apply to the Sunrise facility.

Given that, it seems to me that what we're left with is a situation where there's a potential noncompliance with laws that is not going to -- the resolution, which will not affect the terms and conditions of any Commission decision.

Therefore, staff's recommendation is that the record be closed on every issue except this, and then if there's an unresolved issue as to water or to the phase 2, with that, as well. And that the Commission proceed with its process of drafting a proposed decision.

Staff would not recommend that the Commission adopt a final decision in the face of a noncompliance.

PRESIDING MEMBER MOORE: And, Caryn, that -- sorry, Ms. Holmes, that would then put us in a position potentially where the PMPD would be literally open potentially for months, is that

right?

MS. HOLMES: I think that what I'm saying is that the PMPD could be issued, and it would presumably note the potential violation as an outstanding issue. And the record could be reopened, or could be revisited when EPA informs the Commission or the Committee that the issue is resolved.

PRESIDING MEMBER MOORE: But as a practical matter then the Commission, itself, the Energy Commission wouldn't be able to take action on that proposed decision until that issue was resolved.

MS. HOLMES: One option that the Commission will undoubtedly consider in that situation would be whether to grant, in essence, a conditional decision. Staff does not recommend that the Commission do that.

PRESIDING MEMBER MOORE: Right. Okay, I think what we have is just in the interests of full disclosure. I mean right now Ms. Holmes' point is not debatable, other than just it's your reporting. If someone has different information we probably ought to get it on the table right now. But for all intents and purposes I'll take

that under advisement. And then when we wrap up this afternoon we'll include those comments in the consideration of where we go next schedule-wise.

Mr. Grattan, you have a comment?

MR. GRATTAN: If I understand you correctly, Commissioner, the time to speak to staff recommendation is during the wrap-up this afternoon?

PRESIDING MEMBER MOORE: Well, I think so. I mean if you have something you want to add --

MR. GRATTAN: No, I have no quibble with the information as reported. We'd just like to later comment on the staff recommendation.

PRESIDING MEMBER MOORE: Okay. Well, anybody with any newer or different information than that, this is probably a good time to get it on the table.

MR. GRATTAN: I'm sorry, before we forget -- before I forget. Sayed Sadredin, the permit officer from the San Joaquin Valley Unified Air Pollution Control District was standing by to participate in the EPA phone call. But he is still -- there are questions that relate to the Valley's regulatory program for well drilling,

which he has informed us he would like to address and he would be available by telephone.

PRESIDING MEMBER MOORE: Well, I'm not sure that does us any good without having the EPA people --

MR. GRATTAN: This has nothing to do with the EPA enforcement issue. This has to do with the indirect impacts with regard to well drilling, which have been just discussed here.

PRESIDING MEMBER MOORE: Well, all right. I mean, we're in that zone, should we get him on the phone and everyone agree --

MS. POOLE: I would like to address one point that Ms. Holmes made that doesn't go to her recommendation, but she mentioned that staff has concluded that the violations don't affect this project.

We disagree with that. The violations, as we heard EPA describe them, are related to vapor recovery on wells, and on other equipment in the oil field. And it may very well impact the quantity of indirect emissions associated with this project as well as cumulative.

PRESIDING MEMBER MOORE: In saying that, then, Ms. Poole, what you're offering to the

Committee is a legal opinion about the nature of those violations as opposed to an opinion about what they mean in terms of air quality or that type of impact, something to do with, for instance, Dr. Fox's testimony.

What you just said is your legal opinion about the linkage between the NOVs and not the air quality.

MS. POOLE: To some extent, Commissioner, but it's also there's just been this debate about what percent vapor recovery do you assume, for example, on wells and other things. This goes directly to that.

If there's no vapor recovery system on these wells, then that impacts that discussion heavily.

MR. GRATTAN: If I might respond to that briefly. The alleged violations have nothing to do with the Midway Sunset oil field, and particularly nothing to do with the 700 wells which are identified as the indirect impacts.

And we can let Mr. Sadredin speak to the district's requirements for vapor recovery.

PRESIDING MEMBER MOORE: Okay, I think that Ms. Holmes made your point for you a couple

of minutes ago on that. And I understand, Ms. Poole, what you said. And I'm certain that my attorney understood it and will decipher it for me in caucus later.

Okay, shall we see if we can get the San Joaquin representative on the phone? And Marc looks like he --

HEARING OFFICER FAY: He's going to help us out here.

(Pause.)

MR. SADREDIN: Hello.

MR. PRYOR: Hello, Mr. Sadredin, this is Marc Pryor at the Energy Commission.

MR. SADREDIN: Yes.

MR. PRYOR: We're in a hearing for Sunrise. Commissioner Moore is presiding. Gary Fay is the Hearing Officer. I'll turn you over to Mr. Fay.

HEARING OFFICER FAY: Good morning -- goof afternoon. We have just completed taking testimony on the indirect impacts of the Sunrise project. And on air quality and those, as you know, I think you know those impacts encompass the 700 wells within a three-quarter mile radius of the project.

And I understand that the applicant wanted you to shed some further light on this discussion.

Mr. Galati, do you have some --

MR. GALATI: Yes, thank you. And, Mr. Sadredin, the issue that we're discussing now is not associated with the EPA call that you may have thought you'd be participating in today. I just wanted to let you know that's not what we're discussing.

Mr. Sadredin, there's been some confusion as to the requirements and the regulatory program for new wells that are permitted by the district in the Midway Sunset field, specifically the 465 new production wells and the 135 steam wells that may be associated with the Sunrise project.

Could you please explain the regulatory program with respect to the control of emissions for those new wells?

HEARING OFFICER FAY: Mr. Sadredin, before you do, are you willing to respond to questions as a witness under oath, because --

MR. SADREDIN: Sure.

HEARING OFFICER FAY: -- I believe you

were previously sworn in this proceeding, is that correct?

MR. SADREDIN: Yes.

HEARING OFFICER FAY: Yes, and so you remain under oath, and I just wanted to have that understanding on the record. Please go ahead.

MR. SADREDIN: Basically the entire process is regulated and permitted by the district, so they are subject to a number of regulations for various devices that are involved and various processes that are involved in oil production and storage, and various transfers that are involved.

Do you want me to just go through each step and say what the various requirements are, or do you want to ask specific questions?

MR. GALATI: Well, I guess I'll go ahead and ask some specific questions.

DIRECT EXAMINATION

BY MR. GALATI:

Q Specifically, with respect to VOC emissions, could you please describe to us whether VOC emissions are controlled from new wells, and specifically from the wells, and how they're controlled?

A There are a number of emission points involved in the process, and we have a number of regulations that apply. District rule 4401, for instance, applies to emissions from the wellheads in case they have vents, and that requires 99 percent control at that point.

Later on, as the oil is pumped out of the well it goes to storage tanks and various water separation devices, but mainly storage tanks that perform that function. And those are subject to a district rule for storage and transfer of organic liquids which require 95 percent or higher emissions control.

And then the entire process is subject to district new source review rule, which requires best available control technology. For much of this process BACT, or best available control technology is 99 percent control. And after you apply those controls whatever emissions are remaining after that, increase in emissions, those would have to be offset by emission reduction credits.

MR. GALATI: I think that clears up some confusion here, and I don't really have any more questions for you, Mr. Sadredin.

MR. SADREDIN: There was one thing, if I might, and I had my staff look at CURE's estimated emissions of VOCs, and also the H2S emissions. And we found some gross oversight or errors in that basically the emissions are about nine or ten times higher than what we would estimate. So I don't know if that's beneficial to go through that or not, but that was one thing that we were concerned with.

MR. GALATI: Yes, I think that's important, if you would like to go through that.

MR. SADREDIN: Well, basically CURE, in their estimated emissions, the VOC emissions, they are double-counting some emissions from the well vents. And they are using an outdated emission factor that we don't use except in cases where we don't have that accurate information on the number of fugitive components and related processes.

For instance, if you look at their calculations they estimated fugitive emissions at 57.9 tons per year using the component counts that Texaco had provided. In other words, how many components you would have that might have leaked at certain times.

And then in addition to that, they also

assumed 314 pounds per well per day emission factor.

The fugitive component count really takes care of quantifying the emissions. In cases when you do have the component counts that's all you use to calculate emissions. And you don't use this old emission factor that we used to use as a conservative emission. That's when we didn't have more accurate information.

But basically our VOC emissions estimates would be 60.7 tons per year versus the 463-some tons that CURE had estimated.

And as far as H2S emissions go, they rely on this inaccuracy from the VOC emissions. In other words, the way they calculated the H2S emissions they took their VOC emission estimate and assumed a certain percentage of that would be VOC.

So, starting with a wrong number on that front, you end up with wrong H2S emissions to begin with.

But additionally they made one other assumption that is not accurate. And that relates to the 10,000 ppm, that concentration of H2S that they used, which is five times higher than what

our rules allow. Our district rule 4801 only allows 2000 ppm of H2S concentration.

And so there are two problems. One, the underlying VOC emissions that they then used to calculate the H2S emissions are about ten times higher to begin with. And then the concentration that they assumed is about five times higher than what our rules require for H2S.

MR. GALATI: Mr. Sadredin, I don't have any more questions for you. The Committee or staff or CURE might.

HEARING OFFICER FAY: Do any of the parties wish to cross-examine Mr. Sadredin?

MS. HOLMES: Staff does not.

HEARING OFFICER FAY: CURE, any questions?

MS. POOLE: Well, is Dr. Fox going to be permitted to respond to this?

MR. SADREDIN: I'm sorry, I can't hear you.

MS. POOLE: I'm not asking you a question yet, Mr. Sadredin.

MR. SADREDIN: Oh.

HEARING OFFICER FAY: No. The district director is here available as a witness through

the telephone, and is subject to cross-examination. But that's the extent of it.

MS. POOLE: May we have just a moment.

HEARING OFFICER FAY: Mr. Sadredin, we're holding on for just a moment.

MR. SADREDIN: Okay.

(Pause.)

MS. HOLMES: Mr. Fay, I have one question in the interim, I guess.

CROSS-EXAMINATION

BY MS. HOLMES:

Q Earlier today, Mr. Sadredin, one of the staff witnesses testified that, I believe it was Mr. Gruber of the district had told him that the BACT levels for the wells and the associated equipment were 99.9 percent. Earlier today did you say that they were 99 percent? That that's the correct figure?

A There are two components involved here. The well vent rule requires 99 percent total control overall. And there are two components to these emissions. You have fugitive leaks from various valves and flanges and so forth. And then you have some of the emissions that are captured and go to an incineration device.

Whatever goes to the incineration device is actually controlled by more than 99.9 percent through incineration. Most of that is basically like natural gas and it's fully combusted in that process. So that component, that part of it, we believe, is controlled by more than 99.9 percent.

You will have some fugitive emissions that do not make it to the, perhaps to the incineration device, depending on how many components or leaky components you might have. And total, whatever comes out of the incineration device and whatever fugitive emissions that you have that may be lost, the total losses cannot be more than 1 percent of the overall. The control has to be 99 percent.

And that's what the rule requires. But in practice, because of the incineration, you would get most of the emissions at 99.9 percent control.

MS. HOLMES: Thank you, that's very helpful.

HEARING OFFICER FAY: CURE, anything further?

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CROSS-EXAMINATION

BY MS. POOLE:

Q There's nothing that actually requires 99.9 percent control?

A I'm sorry, I didn't catch that.

Q I'm asking if there's any rule that requires 99.9 percent control?

A If we do determine that 99.9 percent is achievable, that becomes best available control technology, and it could be required as a best available control technology under our new source review rule.

Q Has the district determined that 99.9 percent control is achievable control technology?

A For certain operations of certain petroleum products, obviously it has been demonstrated for a number of years now that they could be cost effectively ducted to an incineration device that does achieve more than 99.9 percent --

Q Mr. Sadredin, I'm focusing specifically on the wells and the heavy crude oil that we're talking about here. Has the district determined that 99.9 percent control is achievable given those inputs?

A For control of emissions from tanks and other components that go to the incineration device, yes, 99.9 percent is achievable.

Q And from wells?

A Yes, from wells, if you do duct those emissions from the well vents, for instance, to an incineration device. Or if they route it through the tanks to an incineration device.

Again, that component of it, you wouldn't still have fugitive components that are not controlled, that are not incinerated. And those are basically controlled through ongoing inspection and maintenance of the leaky components.

Q I'm sorry, I'm confused here. Has the district made a determination that BACT for vapor recovery on wells for heavy crude oil is 99.9 percent?

A We have made a determination that BACT is ducting them to an incineration device. We identified that by the type of control equipment that is required. And it has been well documented that the control equipment that we specify as our BACT is, in fact, more than 99.9 percent efficient just because these vapors are easily combustible

in the incineration device.

Q So is the answer yes?

A Yes, for the emissions that are ducted to an incinerator, yes.

Q And that's for VOCs?

A Sorry?

Q That control efficiency is for VOCs?

A It's for VOCs and also the sulfur components that would also combust within the incineration device. If you have H2S, for instance, those are easily combustible also, and we assume 100 percent conversion basically of the sulfur to sulfur oxide and other combustion components.

Q Have you confirmed this level of recovery with source tests?

A Your question, have we confirmed this with source tests?

Q That's right.

A Normally we don't require source tests --

Q Thank you.

A -- in situations when --

Q Thank you, Mr. Sadredin, that was my question.

MS. POOLE: That's all my questions.

HEARING OFFICER FAY: Okay, thank you. Thank you very much for participating in our hearing. I believe that includes all the questions. So we'll say goodbye.

MR. SADREDIN: Am I still on for the EPA section or am I done today?

MR. GALATI: You're done today.

MR. SADREDIN: Thank you.

HEARING OFFICER FAY: All through.

Okay. Are the parties ready to move on to offering testimony on cumulative impacts?

MS. HOLMES: If I could beg your indulgence, we have a witness that I believe you'd requested to talk to you about DTSC. He's been sitting here all day. If we could get him on that would be helpful.

HEARING OFFICER FAY: Oh, you mean about the phase 2?

MS. HOLMES: Yes.

HEARING OFFICER FAY: Okay, sure.

MS. HOLMES: Mr. Ringer has already been sworn.

HEARING OFFICER FAY: Mr. Ringer, you're still under oath.

DIRECT EXAMINATION

BY MS. HOLMES:

Q Mr. Ringer, are you responsible for insuring coordination with DTSC under the CEC's -- I hate to speak in acronyms -- MOU with DTSC?

A Yes.

Q Can you explain what's happened to date with that process?

A Yes, when we received the phase 2 environmental site assessment at the end of November I sent that down to Kevin Shaddy in the Clovis office of DTSC. And on January 12th I had talked to him regarding where he was in his analysis -- on January 13th, excuse me.

And at that time we talked a little bit about the arsenic levels and some of the things that might have been a concern.

And he said that in general if you looked at the preliminary remediation goals that the levels of arsenic that were found in the phase 2 site assessment were within the range that he would consider acceptable clean-up criteria for an industrial site.

And that typically these types of levels don't result in a need for remediation.

He said that it would be useful to have some indication of the background levels of arsenic down there to compare these two. There was no indication in the environmental site assessment, itself, as to what normal background levels of arsenic were down in the oil field.

And he said that there was no data on semi volatile compounds, and that potentially could be a gap in the data. He didn't say that it was a problem, he just said that that would be more complete information.

Q Have you had any subsequent conversations with DTSC?

A I talked to him today and he pretty much reiterated the same thing.

MS. HOLMES: Thank you. I think that's the information we have.

HEARING OFFICER FAY: All right, thank you for your update.

MS. POOLE: May I ask a quick question?

HEARING OFFICER FAY: Yes.

CROSS-EXAMINATION

BY MS. POOLE:

Q What are semi volatiles?

A Compounds that are a little bit heavier

than volatile compounds. They don't volatilize quite as rapidly.

HEARING OFFICER FAY: Mr. Ringer, could you be sure to speak right into the microphone, please.

BY MS. POOLE:

Q Would those include PAH's and PCB's?

A Yes.

Q And did you send a full copy of the phase 2 to DTSC?

A I sent the -- I'll tell you exactly what I sent -- I sent the first portion of it, which includes everything from the introduction to the conclusions and recommendations.

I sent him the tables, table 1A -- there's two table 1A's, table 1B and 2B. And I believe some of the figures.

Q Okay. Did you send him the soil gas data from the phase 2?

A To the extent that it was in the tables. The tables have summary of analytical results including VOCs, TPHs.

Q You sent him appendix C?

A No.

Q Thanks.

PRESIDING MEMBER MOORE: Questions, Mr. Galati?

MR. GALATI: I just have one question.

PRESIDING MEMBER MOORE: Mr. Ringer, there's one more question for you.

CROSS-EXAMINATION

BY MR. GALATI:

Q Mr. Ringer, does the information that you have now change your conclusions or recommendations in the waste section of the FSA?

A No, it doesn't. I wouldn't expect that DTSC would take any further action even after seeing additional information.

MR. GALATI: Okay, thank you.

HEARING OFFICER FAY: Thank you, Mr. Ringer, you're excused.

Mr. Galati, are you ready to go forward on cumulative impacts?

MR. GALATI: Yes, we are. The record would reflect that Mr. Dave Stein and Ms. Paula Fields are still sworn and the panel regarding cumulative impacts.

DIRECT EXAMINATION

BY MR. GALATI:

Q Ms. Fields, would you please summarize

your previously filed testimony that you previously affirmed under oath regarding the cumulative impact section?

A Yes, thank you. Again, I supervised and assisted in the preparation of the sections of the AFC on the subsequent submittals related to cumulative air quality impacts associated with the Sunrise project.

Cumulative impacts include air emissions from construction and operation of the Sunrise project along with two other projects located within six miles of Sunrise. Those are the LaPaloma and the Elk Hills projects.

There's a couple of issues I'd like to summarize that were contained in my earlier testimony. First of all, with regard to construction. Cumulative construction impacts from all three plants will be mitigated through compliance with district regulation 8 for control of fugitive dust.

And in addition, Sunrise will provide mitigation of PM10 from construction by surrendering ERCs prior to commencement of construction.

With regard to operation. Using full

load emission estimates for LaPaloma and Elk Hills, along with start-up emissions scenario for Sunrise, we modeled the one-hour and annual NO2 impacts, and the 24-hour and annual PM10 impacts from those three projects.

The CO and SO2 impacts were expected to be well below the ambient air quality standards, so we didn't analyze those in detail in the cumulative analysis.

The results of our modeling show that no new violation of the PM10 standard or any violation of the NO2 standards would occur.

This is the same conclusion made by staff, even though their analysis was conducted using different data.

The three projects will contribute to existing violations at the PM10 ambient air quality standard, but each project will provide PM10 offsets to mitigate their impacts.

Thank you.

HEARING OFFICER FAY: Thank you.

MR. GALATI: The panel is available for cross-examination.

HEARING OFFICER FAY: Staff?

MS. HOLMES: No questions.

HEARING OFFICER FAY: CURE?

MS. POOLE: No questions.

HEARING OFFICER FAY: All right. Is staff ready to testify on cumulative impacts?

MS. HOLMES: We call Mr. Loyer.

HEARING OFFICER FAY: Mr. Loyer, you're still under oath.

DIRECT EXAMINATION

BY MS. HOLMES:

Q And ask you to very briefly summarize your conclusions with respect to cumulative impacts.

A Sure. For the Sunrise project we analyzed several areas including the TCI main utility corridor, the Kern County additional power plant projects, the Midway Sunset oil field expansion and secondary pollutant impacts including ozone and PM10.

For the TCI -- well, for all areas we found no expectation that there would be any significant air quality impacts from any of these sources.

Q Does that conclude your summary?

A Yeah, I'm going to keep it simple today.

(Laughter.)

MS. HOLMES: Thank you. Mr. Loyer is available for cross-examination.

HEARING OFFICER FAY: Applicant?

MR. GALATI: No cross.

HEARING OFFICER FAY: CURE?

MS. POOLE: No questions.

HEARING OFFICER FAY: Okay. CURE, do you have testimony on cumulative impacts?

MS. POOLE: We'll just stand by our written testimony.

HEARING OFFICER FAY: Okay. Very good. That bring us to --

PRESIDING MEMBER MOORE: Yes, if you'll give us five minutes we'll take a break; and then we'll come back and talk about scheduling.

(Brief recess.)

PRESIDING MEMBER MOORE: Let's go back on the record and let me just start by saying that I commend everyone for their efforts. This is clearly a very complex case and we will be challenged trying to put together a record from the testimony that's been given. We'll obviously do our best to make it as clear and fair as we possibly can.

Basically the record is closed. We will

recognize Mr. Galati and ask him to tell us about the materials that he told us about during the break that had been docketed. And I understand that CURE has a copy of the docketed materials.

MS. POOLE: We do. We'll be objecting to its entry as an exhibit, however.

MR. GALATI: Let me first identify it.

HEARING OFFICER FAY: Let's let him go first.

MR. GALATI: I'll identify it and have an offer of proof in light of the pending objection.

January 27, 2000 it was docketed. It is a declaration of John Haley. This was in response, -- it is in response to rebuttal testimony. Mr. Haley could be available for cross-examination if necessary.

It is specifically rebutting the issue of Avila Beach community plan and the use of soot filters on that project.

And I would just like to remind the Committee that this was testimony that had come out in rebuttal by CURE due to staff's modification into leading soot filters. And as they were surprised by that information, were able

to bring witnesses at that time, we scrambled the best we could do during the last hearings, were -- was a oxidation catalyst specialist.

We also heard in public health testimony quite a bit of testimony about the Avila Beach community project. We were able to discover someone who has experience with the Avila Beach community project. We just received this yesterday and we docketed it yesterday, faxed it to CURE.

There's two parts to it. There is the actual declaration of Mr. Haley with an attachment A of his statement of qualifications, actually three parts. And the third part, which we think is most important, is a letter from San Luis Obispo. In fact, Robert Carr, discussing the soot filter.

Since the Commission is dealing with this issue in this case and others, we think that this would be beneficial information to help the Committee decide the appropriate mitigation and the cost and efficiency of soot filters.

I'm sorry, it was the San Luis Obispo Air Pollution Control District letter, not from this district. That's the district associated

with the Avila Beach project.

HEARING OFFICER FAY: Right, understand. Okay, Ms. Poole, do you have objection?

MS. POOLE: Thank you. We do object to this testimony coming in now. It goes to construction emissions from the project. The record was closed on that January 11th.

Mr. Galati is correct. CURE did put on rebuttal testimony to some late changes that came in from staff on January 10th. And the applicant has, in fact, already put on a rebuttal witness to our rebuttal testimony. That happened on January 11th.

This is just way too late, and you know, they've already had their opportunity to do rebuttal here.

HEARING OFFICER FAY: All right, does staff want to wade in on this, also?

MS. HOLMES: Staff would prefer to duck.

HEARING OFFICER FAY: Okay.

(Laughter.)

HEARING OFFICER FAY: Thank you for your precise comment.

I think in light of the give and take that we've observed trying to be equitable to

everybody, we're going to uphold the objection. But I see no reason not to receive this as comment. We have a lot of evidence on soot filters. We can use this to flesh it out. We can't make any findings based on it. To that extent you're disadvantaged.

But I think in fairness, we've been back and forth on this, and we're sort of tired of soot filters.

PRESIDING MEMBER MOORE: And obviously I'm in concurrence with that. I guess the only thing I would add is I'm sorry that we didn't get these cost numbers. It doesn't seem to me that they, from what I've just scanned of this very fast, that as Mr. Fay said, they simply add depth to what we've been hearing.

So, we'll receive them.

Let's go on to scheduling matters. The evidentiary hearings are closed.

MS. POOLE: May I move my air quality exhibits into the record first?

PRESIDING MEMBER MOORE: Oh, yes, excuse me --

MR. GALATI: I have some housekeeping along those lines, too.

PRESIDING MEMBER MOORE: Boy, that word housekeeping.

HEARING OFFICER FAY: Mr. Galati, why don't we go first with you and your housekeeping.

MR. GALATI: Thank you. I'd like to move in exhibit 49, exhibit 50, exhibit 51, and exhibit 53.

Also I would like to, exhibit 59, 60, exhibit 65, exhibit 66, 67, 68, 69, 70, 71, 73, 79, 80, 81, 83, 84 and 85, 88, and I'm at a loss here -- I believe I'd already asked for the water quality 102, 103 -- excuse me, 102 to be received into evidence today.

HEARING OFFICER FAY: All right, is there objection? All right, those are all moved into evidence if they have not been so moved already.

You're responding to the blanks on the exhibit list, is that --

MR. GALATI: Yes, I was. I did notice that some said they were sponsored by the applicant when I'm not sure they were, so I skipped over them if they weren't.

HEARING OFFICER FAY: And I invite the parties to get corrections to me as soon as

possible on the exhibit list, and we'll review them and reissue the list.

All right, staff, any last minute things?

MS. HOLMES: Well, just that there are a number of the same exhibits with blanks next to them that are sponsored by staff that I thought had been introduced.

HEARING OFFICER FAY: And they may have. If you believe they have, I wouldn't be concerned.

MS. HOLMES: Well, --

HEARING OFFICER FAY: Blanks do not --

MS. HOLMES: Can I please read them just to be --

HEARING OFFICER FAY: Sure, okay.

MS. HOLMES: It's 41, 42, 54, 55, 63, 64, 65, 67 and 66 read sponsored by the applicant. I believe they were sponsored by staff. I thought they were in evidence but if they're not I'd like to move them at this point.

75, 76, 81, 86, 87, and 89. And I believe -- I note that exhibit 47 was sponsored by staff, not by the applicant.

HEARING OFFICER FAY: Yeah, I'd prefer to get these comments in writing.

MS. HOLMES: Okay. I just want to make sure that the exhibits that we --

HEARING OFFICER FAY: Okay, any objection to moving those exhibits? I hear none, so moved.

And CURE.

MS. POOLE: I'd like to move exhibits 56, 57, 58 and 61, which I believe CURE sponsored. And I think these have already been moved in, but to be sure, I'd also like to move exhibit 72, 77, 78, 82, and I believe that's it, into the record.

HEARING OFFICER FAY: Okay, and was there testimony offered today that you wanted --

MS. POOLE: There was. I believe I've already moved those in, but those were exhibits 103, 104, 105 and 106.

HEARING OFFICER FAY: Okay. Any objection to those exhibits listed? I hear none, so moved.

Okay, anything further then before we wrap things up?

MS. HOLMES: Just to make sure, one last thing. To make sure that exhibits 84 and 85, which I believe maybe neither one of us identified, having to do -- they're letters from

San Joaquin County and a letter from the USEPA. I just want to make sure they get moved into evidence. I don't recollect whether --

MR. GALATI: Yeah, I just did that. That was part of my list.

MS. HOLMES: I'm sorry.

HEARING OFFICER FAY: All right. Now, do you have any scheduling concerns you want to address?

MR. GRATTAN: Well, I have lots of scheduling concerns, but we have a briefing schedule and we are, I hate to use the word comfortable, with that briefing schedule, but we proposed it and it's an aggressive briefing schedule, and we think we should keep it.

Applicant has proposed a schedule for the remainder of the hearing process up to decision. The Committee rejected that schedule. And I believe that what we have on the table is to plot out the rest of our days.

And we would propose -- I mean I haven't seen a proposed counter schedule. We'd propose working, if the idea is to work out getting to the finish line, we would at least propose that you look at our schedule we had proposed some months

ago.

HEARING OFFICER FAY: Any other comments? Staff?

MS. HOLMES: No.

HEARING OFFICER FAY: CURE?

MS. POOLE: Just some remarks on EPA's position. As you recall EPA did say the final DOC for this project is not valid.

We don't see the advantage in moving forward with air quality briefing and a decision, proposed decision on that subject matter until we know from EPA that it is valid.

MR. GRATTAN: If I can comment on that?

HEARING OFFICER FAY: Sure.

MR. GRATTAN: EPA has suggested, based upon, by their own admission, not too much evidence or not too much data that they didn't like the DOC, based upon their view of the conditions of certification.

I would like to point out that EPA is not under either state or federal law in the approval chain of the DOC. And that the Energy Commission's statute and regulations are very clear that this call is the air pollution control officer of the related district's call.

And until a court overturns that, if a court would dream of overturning it, we have a valid DOC and the Commission has an obligation to proceed on it.

MS. POOLE: Well, in fact, if I might point out, EPA does have permitting authority in the Title 5 permitting process. And these issues will be addressed in that process. And EPA has veto authority over a permit in that process.

MR. GRATTAN: And Sunrise doesn't need a Title 5 permit until a year after operations.

PRESIDING MEMBER MOORE: Well, okay, at this point then I respect those comments. Clearly, they're on my mind. They were on my mind when we opened this hearing this morning. And they remain so.

We'll take your letter under advisement, counselor. We're now in a mechanical zone where we will move as rapidly as we can. I am advised, and frankly, given the workload of everyone around here, I think it's probably not beyond the realm of imagination to see that the 60-day norm, the rule, the windage number that people use for getting a decision out is probably accurate. If we can do it faster than that, we will.

As I said before, a very complex record. There are two of us to debate this, and we will do that. And we'll issue a letter as soon as we can telling you what our intentions are as soon as we can dial in our own workload and figure out how rapidly we can close this down.

I'll have -- the decision will take account of the federal issue. It will be included in that. I can't tell you how we'll decide to deal with it this instant, but it will be accounted for.

Mr. Grattan, you look like you're leaping for the illusive microphone.

MR. GRATTAN: No, I was struggling --

HEARING OFFICER FAY: You're opting for the --

MR. GRATTAN: -- to hear.

HEARING OFFICER FAY: Seven-day turnaround on the document, the cartoon version.

MR. GRATTAN: I'm not leaping toward anything. I would -- staff has made a recommendation with regard to the federal issue. And I would presume that we would either have a discussion on that now before the Committee ruled, or that we would be able, in the course of our

final brief, to brief what we believe the Committee should do with the federal issue in terms of the final decision, the PMPD, and construction.

HEARING OFFICER FAY: I think for everybody's sake it would be better, rather than to put everybody on the spot right now, to put their last word on the record on this, since it really is not a question of fact, why don't you advise us in your briefs, in your air quality briefs, on how you think the Committee should handle the uncertainties that are out there vis-a-vis EPA's apparent disagreement with the district.

And the Committee will truly seriously consider that. There's really a wide range of options. And anyway, we'll have you advise us on that.

And I have ordered an expedite of this transcript. My guess is that the transcript may be available Wednesday to post. If we get it Tuesday it will be posted probably Wednesday.

So, the parties are on notice that the air quality brief is due ten days after the transcript is posted. And then reply brief seven days after that.

MR. GRATTAN: Mr. Hearing Officer, while you're ordering up expedites, could you get one on USEPA?

(Laughter.)

HEARING OFFICER FAY: And how much do you think that would be worth?

(Laughter.)

HEARING OFFICER FAY: Anything else, then, before we bid a fond farewell to our evidentiary record?

Nothing.

PRESIDING MEMBER MOORE: We're adjourned.

HEARING OFFICER FAY: Thank you.

PRESIDING MEMBER MOORE: Thank you, all.

HEARING OFFICER FAY: The record is closed.

(Whereupon, at 2:37 p.m., the hearing was closed.)

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CERTIFICATE OF REPORTER

I, DEBI BAKER, an Electronic Reporter, do hereby certify that I am a disinterested person herein; that I recorded the foregoing California Energy Commission Hearing; that it was thereafter transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said Hearing, nor in any way interested in the outcome of said Hearing.

IN WITNESS WHEREOF, I have hereunto set my hand this 31st day of January, 2000.

DEBI BAKER